Beaver Valley Power Station

Unit 1/2

1/2-ODC-1.01

ODCM: Index, Matrix and History of ODCM Changes

Document Owner Manager, Chemistry

Revision Number	8
Level Of Use	General Skill Reference
Safety Related Procedure	Yes
Effective Date	05/30/09

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	1/2	General Skill Reference
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	Beaver Valley Power Station	Procedure Number:	01
Title:		Unit: Level Of Use	:
		1/2 General S	skill Ref
ODCM	1: Index, Matrix and History of ODCM Changes	Revision: Page Number	r: of 84
1.0	PURPOSE		
1.1	This procedure provides an index for the entire Off	site Dose Calculation Manual (OD	DCM).
1.2	This procedure also provides an historical descripti	on of all changes to the ODCM.	,
1.3	This procedure also contains a matrix of plant proc Technical Specifications (RETS), Radiological Env surveillances that were transferred from the Techni ODCM via Change (8) and Change (16).	edure references for Radiological I ironmental Monitoring Program (I cal Specification Procedure Matrix	Effluer REMP (to the
1.3	Prior to issuance of this procedure, these items of the old ODCM.	were located in the Index and Ap	pendix
1.3	7.2 The numbering of each specific ODCM Control ODCM Controls Tables contained in this proc This is intentional, as all ODCM Controls, OD ODCM Controls Tables numbers remained the Technical Specifications Procedure Matrix. The amount of plant procedure changes and to elim	Is, ODCM Surveillance Requirement edure does not appear to be sequer CM Surveillance Requirements and same when they were transferred is was done in an effort to minimize	ents an ntial. d from th ze the
	numbering changes.	inate any confusion associated wit	th
2.0	numbering changes.	inate any confusion associated wit	t h
2.0 2.1	numbering changes. <u>SCOPE</u> This procedure is applicable to all station personnel described and referenced in this procedure.	inate any confusion associated wit that are qualified to perform activi	h ities as
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The: Low Cord Construction ODCM: Index, Matrix and History of ODCM Changes 1/2 Low Cord Construction 0DCM: Index, Matrix and History of ODCM Changes 1/2 Concert Skill 3.1.6 1/2-ADM-1640, Control of the Offsite Dose Calculation Manual 3.1.7 1/2-ADM-0100, Procedure Writer's Guide 3.1.8 NOP-SS-3001, Procedure Review and Approval 3.1.8 NOP-SS-3001, Procedure Review and Approval 3.1.9 CR04-09895, Missed ODCM Channel Functional Test (Gas Effluent Sampler Flowr: CA-04, Revise ODCM procedure 1/2-ODC-1.01, Attachment C, Table F.3 a to show the Channel Functional Test requirements for the Unit 1 Sampler Flowrate Measurin Devices delineated in ODCM procedure 1/2-ODC-3.03, Attachment F, Table 4.3-13 being met by Form 1/2-ENV-01.04.F01 instead of 1MSP-43.71-1 3.1.10 CR05-01169 Chemistry Action Plan For Transition of RETS, REMP and ODCM, C thru CA-21, Revise ODCM procedures to change document owner from "Manager, Radiation Protection" to Manager Nuclear Environmental & Chemistry". 3.1.11 CR06-04908, Radiation Monitor Alarm Setpoint Discrepancies. CA-03; revise ODC procedure 1/2-ODC-2.01 to update the alarm setpoints of [RM-1RM-100] and [RM-10A-100] and [RM-10A-10C-2.01 to update the alarm setpoints of [2SWS-RQ101] fn incorporation of the Extended Power Uprate per Unit 1 TS Amendme No. 275. Also, CA-04; revised ODCM procedure 1/2-ODC-2.01		Beaver Valley Power Station	Procedure Nu	umber: 1/2-ODC-1 01
ODCM: Index, Matrix and History of ODCM Changes Reminential Network Reminential Network Soft 3.1.6 1/2-ADM-1640, Control of the Offsite Dose Calculation Manual 3.1.7 1/2-ADM-0100, Procedure Writer's Guide 3.1.8 NOP-SS-3001, Procedure Review and Approval 3.1.9 CR04-09895, Missed ODCM Channel Functional Test (Gas Effluent Sampler Flowr: CA-04, Revise ODCM procedure 1/2-ODC-1.01, Attachment C, Table F:3a to show the Channel Functional Test requirements for the Unit 1 Sampler Flowrate Measurin Devices delineated in ODCM procedure 1/2-ODC-3.03, Attachment F, Table 4.3-13 being met by Form 1/2-ENV-01.04, F01 instead of 1MSP-43, 71-1 3.1.10 CR05-01169 Chemistry Action Plan For Transition of RETS, REMP and ODCM, C thru CA-21, Revise ODCM procedures to change document owner from "Manager, Radiation Protection" to Manager Nuclear Environmental & Chemistry". 3.1.11 CR06-04908, Radiation Monitor Alarm Setpoint Discrepancies. CA-03; revise ODC procedure 1/2-ODC-2.01 to update the alarm setpoints of [RM-1RM-100] and [RM-10A-100] for incorporation of the Extended Power Uprate per Unit 1 TS Amendme No. 275. Also, CA-04; revised ODCM procedure 1/2-ODC-2.02 to add a'≤' design to all alarm setpoints for Unit 1 and Unit 2 low range noble gas effluent monitors. 3.1.12 CR06-6476, Procedure 1/2-ODC-2.01 Needs Revised for Plant Uprate. CA-01; revio ODCM procedure 1/2-ODC-2.01 to update the alarm setpoints of [2SWS-RQ101] fn incorporation of the Extended Power Uprate per Unit 2 TS Amendment No. 156. 3.2 Summary of References Used Throughout Other Procedures of the OD	Title:		Unit:	Level Of Use: General Skill Reference
 3.1.6 1/2-ADM-1640, Control of the Offsite Dose Calculation Manual 3.1.7 1/2-ADM-0100, Procedure Writer's Guide 3.1.8 NOP-SS-3001, Procedure Review and Approval 3.1.9 CR04-09895, Missed ODCM Channel Functional Test (Gas Effluent Sampler Flowric CA-04, Revise ODCM procedure 1/2-ODC-1.01, Attachment C, Table F.3a to show the Channel Functional Test requirements for the Unit 1 Sampler Flowrate Measurin Devices delineated in ODCM procedure 1/2-ODC-3.03, Attachment F, Table 4.3-13 being met by Form 1/2-ENV-01.04.F01 instead of 1MSP-43.71-1 3.1.10 CR05-01169 Chemistry Action Plan For Transition of RETS, REMP and ODCM, C thru CA-21, Revise ODCM procedures to change document owner from "Manager, Radiation Protection" to Manager Nuclear Environmental & Chemistry". 3.1.11 CR06-04908, Radiation Monitor Alarm Setpoint Discrepancies. CA-03; revise ODC procedure 1/2-ODC-2.01 to update the alarm setpoints of [RM-1RM-100] and [RM 1DA-100] for incorporation of the Extended Power Uprate per Unit 1 TS Amendme No. 275. Also, CA-04; revised ODCM procedure 1/2-ODC-2.02 to add at ≤'' design to all alarm setpoints for Unit 1 and Unit 2 low range noble gas effluent monitors. 3.1.12 CR06-6476, Procedure 1/2-ODC-2.01 Needs Revised for Plant Uprate. CA-01; revi ODCM procedure 1/2-ODC-2.01 to update the alarm setpoints of [2SWS-RQ101] fn incorporation of the Extended Power Uprate per Unit 2 TS Amendment No. 156. 3.2 Summary of References Used Throughout Other Procedures of the ODCM 3.2.1.1 BVPS-1 UFSAR Section 11.2.3; Gaseous Waste Disposal System 3.2.1.2 BVPS-1 UFSAR Section 11.2.4; Liquid Waste Management Systems 3.2.1.4 BVPS-2 UFSAR Section 11.3; Gaseous Waste Management Systems 3.2.2 Condition Reports and SAP Orders: 3.2.2.1 CR 971578, MEMBERS OF THE PUBLIC Discrepancies. CA-01, Revise Section 4 of the ODCM to clarify how doses due to effluents for members of the public (conducting activities inside the site boundary) a	ODCM: Inc	ex, Matrix and History of ODCM Changes	Revision: 8	Page Number: 5 of 84
 3.1.7 1/2-ADM-0100, Procedure Writer's Guide 3.1.8 NOP-SS-3001, Procedure Review and Approval 3.1.9 CR04-09895, Missed ODCM Channel Functional Test (Gas Effluent Sampler Flow: CA-04, Revise ODCM procedure 1/2-ODC-1.01, Attachment C, Table F.3a to show the Channel Functional Test requirements for the Unit 1 Sampler Flowrate Measurin Devices delineated in ODCM procedure 1/2-ODC-3.03, Attachment F, Table 4.3-13 being met by Form 1/2-ENV-01.04.F01 instead of 1MSP-43.71-1 3.1.10 CR05-01169 Chemistry Action Plan For Transition of RETS, REMP and ODCM, C thru CA-21, Revise ODCM procedures to change document owner from "Manager, Radiation Protection" to Manager Nuclear Environmental & Chemistry". 3.1.11 CR06-04908, Radiation Monitor Alarm Setpoint Discrepancies. CA-03; revise ODC procedure 1/2-ODC-2.01 to update the alarm setpoints of [RM-1RM-100] and [RM 1DA-100] for incorporation of the Extended Power Uprate per Unit 1 TS Amendme No. 275. Also, CA-04; revised ODCM procedure 1/2-ODC-2.02 to add a'≤' design to all alarm setpoints for Unit 1 and Unit 2 low range noble gas effluent monitors. 3.1.12 CR06-6476, Procedure 1/2-ODC-2.01 to update the alarm setpoints of [2SWS-RQ101] fo incorporation of the Extended Power Uprate per Unit 2 TS Amendment No. 156. 3.2 Summary of References Used Throughout Other Procedures of the ODCM 3.2.1.1 BVPS-1 UFSAR Section 11.2.3; Gaseous Waste Disposal System 3.2.1.2 BVPS-1 UFSAR Section 11.2; Liquid Waste Management Systems 3.2.1.4 BVPS-2 UFSAR Section 11.2; Liquid Waste Management Systems 3.2.1.4 BVPS-2 UFSAR Section 11.3; Gaseous Waste Management Systems 3.2.1.2 Condition Reports and SAP Orders: 3.2.1.2 Condition Reports and SAP Orders: 3.2.2.1 CR 971578, MEMBERS OF THE PUBLIC Discrepancies. CA-01, Revise Sec 4 of the ODCM to clarify how doses due to effluents for members of the public (conducting activities inside the site boundary) are derived and reported.	3.1.6	1/2-ADM-1640, Control of the Offsite Dose Calculation	n Manual	
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 3.1.11 CR06-04908, Radiation Monitor Alarm Setpoint Discrepancies. CA-03; revise ODC procedure 1/2-ODC-2.01 to update the alarm setpoints of [RM-1RM-100] and [RM 1DA-100] for incorporation of the Extended Power Uprate per Unit 1 TS Amendme No. 275. Also, CA-04; revised ODCM procedure 1/2-ODC-2.02 to add a"≤" design to all alarm setpoints for Unit 1 and Unit 2 low range noble gas effluent monitors. 3.1.12 CR06-6476, Procedure 1/2-ODC-2.01 Needs Revised for Plant Uprate. CA-01; revi ODCM procedure 1/2-ODC-2.01 to update the alarm setpoints of [2SWS-RQ101] for incorporation of the Extended Power Uprate per Unit 2 TS Amendment No. 156. 3.2 Summary of References Used Throughout Other Procedures of the ODCM 3.2.1 BVPS-1 uFSAR Section 11.2.3; Gaseous Waste Disposal System 3.2.1.2 BVPS-1 UFSAR Section 11.2.4; Liquid Waste Disposal System 3.2.1.3 BVPS-2 UFSAR Section 11.2; Liquid Waste Management Systems 3.2.1.4 BVPS-2 UFSAR Section 11.3; Gaseous Waste Management Systems 3.2.2 Condition Reports and SAP Orders: 3.2.1 CR 971578, MEMBERS OF THE PUBLIC Discrepancies. CA-01, Revise Set 4 of the ODCM to clarify how doses due to effluents for members of the public (conducting activities inside the site boundary) are derived and reported. 	3.1.10	CR05-01169 Chemistry Action Plan For Transition of R hru CA-21, Revise ODCM procedures to change docur Radiation Protection" to Manager Nuclear Environment	ETS, REMP nent owner fr al & Chemisti	and ODCM, CA-14 om "Manager, ry".
 3.1.12 CR06-6476, Procedure 1/2-ODC-2.01 Needs Revised for Plant Uprate. CA-01; revi ODCM procedure 1/2-ODC-2.01 to update the alarm setpoints of [2SWS-RQ101] fi incorporation of the Extended Power Uprate per Unit 2 TS Amendment No. 156. 3.2 <u>Summary of References Used Throughout Other Procedures of the ODCM</u> 3.2.1 <u>BVPS-1 and 2 UFSAR</u>: 3.2.1.1 BVPS-1 UFSAR Section 11.2.3; Gaseous Waste Disposal System 3.2.1.2 BVPS-1 UFSAR Section 11.2.4; Liquid Waste Disposal System 3.2.1.3 BVPS-2 UFSAR Section 11.2; Liquid Waste Management Systems 3.2.1.4 BVPS-2 UFSAR Section 11.3; Gaseous Waste Management Systems 3.2.2 Condition Reports and SAP Orders: 3.2.1.1 CR 971578, MEMBERS OF THE PUBLIC Discrepancies. CA-01, Revise Set 4 of the ODCM to clarify how doses due to effluents for members of the public (conducting activities inside the site boundary) are derived and reported. 	3.1.11	CR06-04908, Radiation Monitor Alarm Setpoint Discreprocedure 1/2-ODC-2.01 to update the alarm setpoints of IDA-100] for incorporation of the Extended Power Upr No. 275. Also, CA-04; revised ODCM procedure 1/2-O o all alarm setpoints for Unit 1 and Unit 2 low range no	pancies. CA-0 of [RM-1RM- rate per Unit 1 DC-2.02 to a ble gas effluer	03; revise ODCM -100] and [RM- I TS Amendment dd a"≤" designation nt monitors.
 3.2 Summary of References Used Throughout Other Procedures of the ODCM 3.2.1 <u>BVPS-1 and 2 UFSAR</u>: 3.2.1.1 BVPS-1 UFSAR Section 11.2.3; Gaseous Waste Disposal System 3.2.1.2 BVPS-1 UFSAR Section 11.2.4; Liquid Waste Disposal System 3.2.1.3 BVPS-2 UFSAR Section 11.2; Liquid Waste Management Systems 3.2.1.4 BVPS-2 UFSAR Section 11.3; Gaseous Waste Management Systems 3.2.2 Condition Reports and SAP Orders: 3.2.2.1 CR 971578, MEMBERS OF THE PUBLIC Discrepancies. CA-01, Revise Section 4 of the ODCM to clarify how doses due to effluents for members of the public (conducting activities inside the site boundary) are derived and reported. 	3.1.12	CR06-6476, Procedure 1/2-ODC-2.01 Needs Revised for DDCM procedure 1/2-ODC-2.01 to update the alarm se ncorporation of the Extended Power Uprate per Unit 2	or Plant Uprat tpoints of [2S TS Amendme	e. CA-01; revise SWS-RQ101] for ent No. 156.
 3.2.1 <u>BVPS-1 and 2 UFSAR</u>. 3.2.1.1 BVPS-1 UFSAR Section 11.2.3; Gaseous Waste Disposal System 3.2.1.2 BVPS-1 UFSAR Section 11.2.4; Liquid Waste Disposal System 3.2.1.3 BVPS-2 UFSAR Section 11.2; Liquid Waste Management Systems 3.2.1.4 BVPS-2 UFSAR Section 11.3; Gaseous Waste Management Systems 3.2.2 <u>Condition Reports and SAP Orders</u>: 3.2.2.1 CR 971578, MEMBERS OF THE PUBLIC Discrepancies. CA-01, Revise Section 4 of the ODCM to clarify how doses due to effluents for members of the public (conducting activities inside the site boundary) are derived and reported. 	3.2 <u>Sun</u>	nary of References Used Throughout Other Procedures	of the ODCM	<u>.</u>
 3.2.1.1 BVPS-1 UFSAR Section 11.2.3; Gaseous Waste Disposal System 3.2.1.2 BVPS-1 UFSAR Section 11.2.4; Liquid Waste Disposal System 3.2.1.3 BVPS-2 UFSAR Section 11.2; Liquid Waste Management Systems 3.2.1.4 BVPS-2 UFSAR Section 11.3; Gaseous Waste Management Systems 3.2.2 Condition Reports and SAP Orders: 3.2.2.1 CR 971578, MEMBERS OF THE PUBLIC Discrepancies. CA-01, Revise Section 4 of the ODCM to clarify how doses due to effluents for members of the public (conducting activities inside the site boundary) are derived and reported. 	3.2.1	<u>BVPS-1 and 2 UFSAR</u>		
 3.2.1.2 BVPS-1 UFSAR Section 11.2.4; Liquid Waste Disposal System 3.2.1.3 BVPS-2 UFSAR Section 11.2; Liquid Waste Management Systems 3.2.1.4 BVPS-2 UFSAR Section 11.3; Gaseous Waste Management Systems 3.2.2 Condition Reports and SAP Orders: 3.2.2.1 CR 971578, MEMBERS OF THE PUBLIC Discrepancies. CA-01, Revise Section 4 of the ODCM to clarify how doses due to effluents for members of the public (conducting activities inside the site boundary) are derived and reported. 	3.2.1	BVPS-1 UFSAR Section 11.2.3; Gaseous Waste I	Disposal Syste	em
 3.2.1.3 BVPS-2 UFSAR Section 11.2; Liquid Waste Management Systems 3.2.1.4 BVPS-2 UFSAR Section 11.3; Gaseous Waste Management Systems 3.2.2 <u>Condition Reports and SAP Orders</u>: 3.2.2.1 CR 971578, MEMBERS OF THE PUBLIC Discrepancies. CA-01, Revise Sect 4 of the ODCM to clarify how doses due to effluents for members of the public (conducting activities inside the site boundary) are derived and reported. 	3.2.1	BVPS-1 UFSAR Section 11.2.4; Liquid Waste Di	sposal System	1
 3.2.1.4 BVPS-2 UFSAR Section 11.3; Gaseous Waste Management Systems 3.2.2 Condition Reports and SAP Orders: 3.2.2.1 CR 971578, MEMBERS OF THE PUBLIC Discrepancies. CA-01, Revise Section 4 of the ODCM to clarify how doses due to effluents for members of the public (conducting activities inside the site boundary) are derived and reported. 	3.2.1	BVPS-2 UFSAR Section 11.2, Liquid Waste Man	agement Syste	ems
 3.2.2 <u>Condition Reports and SAP Orders</u>: 3.2.2.1 CR 971578, MEMBERS OF THE PUBLIC Discrepancies. CA-01, Revise Set 4 of the ODCM to clarify how doses due to effluents for members of the public (conducting activities inside the site boundary) are derived and reported. 	3.2.1	BVPS-2 UFSAR Section 11.3; Gaseous Waste Ma	anagement Sy	stems
3.2.2.1 CR 971578, MEMBERS OF THE PUBLIC Discrepancies. CA-01, Revise Sec 4 of the ODCM to clarify how doses due to effluents for members of the public (conducting activities inside the site boundary) are derived and reported.	3.2.2	Condition Reports and SAP Orders:		
	3.2.2	CR 971578, MEMBERS OF THE PUBLIC Discr 4 of the ODCM to clarify how doses due to effluen (conducting activities inside the site boundary) are	epancies. CA nts for membe derived and r	-01, Revise Section ers of the public reported.
3.2.2.2 CR 980129, ODCM Procedure Matrix Discrepancies. CA-01, Revise Appendi of the ODCM to correct discrepancies with 1/2-OM L5 Surveillance Logs.	3.2.2	CR 980129, ODCM Procedure Matrix Discrepance of the ODCM to correct discrepancies with 1/2-OI	ies. CA-01, H M L5 Surveill	Revise Appendix F ance Logs.

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3.2.2.3	CR 980353, EPMP 2.01 Discrepancies for Environme CA-01, Revise Section 3 of the ODCM to correct RE sectors.	ental Samp EMP sampl	ling Locations. e site distances and
3.2.2.4	CR 981488, Chemistry Related ODCM Procedures as References. CA-01, Revise ODCM Appendix F to ac references.	nd ODCM ld Chemist	Appendix F ry procedure
3.2.2.5	CR 981489, ODCM Table 4.11-2 Row A (Waste Gas Tritium). CA-01, Revise Appendix C of the ODCM (clarification as to where and when tritium samples are discharges.	s Storage T (Table 4.11) to be obta	Tank Discharge I-2) to add ained for GWST
3.2.2.6	CR 981490, ODCM Table 4.11-2 Note e, and Related Procedures. CA-01, Revise Appendix C of the ODCI specify the proper tritium sample point.	d Chemistr M (Table 4	y Department 11-2, Note e) to
3.2.2.7	CR 982097, Liquid Discharge Post Release Review M Section 1 of the ODCM to add clarification for calcul concentration when the Post Dose Correction Factor	fethodolog ation of rac is >1.	gy. CA-01, Revise dionuclide
3.2.2.8	CR 990025, Unnecessary Radiation Monitor Setpoint Discharges. No ODCM changes are required for this	Change A CR.	fter Waste
3.2.2.9	CR 992652, Discrepancies Concerning ODCM Survey Effluent Instrumentation. CA-02, Revise Appendix F proper reference to the HP Shift logs.	illances of of the OD	Unit 1 Gaseous CM to make
3.2.2.10	CR 993021, Apparent Failure to Test RM-DA-100 Tr ODCM. No ODCM changes are required for this CR	rip Functio	n as Required by
3.2.2.11	CR 001682, ODCM Action 28 Guidance. CA-02, Re ODCM (Table 3.3-13, Action 28) to differentiate action Inoperable Process Flow Rate Monitors vs. Sample Fl	vise Apper ons associa ow Rate M	ndix C of the ated with fonitors.
3.2.2.12	CR02-05533, Procedure 1/2-ODC-3.03, ATTACHMI CA-01, Revise ODCM procedure 1/2-ODC-3.03 (Tab minimum channels operable and associated actions wh Device [FR-1LW-103] is inoperable.	ENT E Mis ble 3.3-12) len Flow R	ssing Information. to include ate Measurement
3.2.2.13	CR02-05711, TS and ODCM changes not reflected in Log. CA-01, Revise 1/2-ODC-3.03 to add a requirem groups notification of pending ODCM changes.	10M-54.3 nent for app	3.L5 Surveillance plicable station
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Be	eaver valley Power Station		1/2-ODC-1.01
Title:		Unit: 1/2	Level Of Use: General Skill Referen
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3.2.2.14	CR02-06174, Tracking of Activities for Unit 11 CA-13, Revise ODCM procedure 1/2-ODC-1.0 Zn-65 is being added to the ODCM. CA-14, Re 2.01 (Tables 1.1-1a and 1b) to include the addit source term.	RCS Zinc Addit 1 to include a d evise ODCM pr ion of Zn-65 to	tion Implementation. iscussion as to why rocedure 1/2-ODC- ODCM liquid
3.2.2.15	CR 03-02466, RFA-Radiation Protection Efflue Recommendation on Processing when Performin 7A/7B]. CA-02, Revise ODCM Procedure 1/2- show the liquid waste flow path cross-connect b	nt Control Proving Weekly Sam ODC-2.01, (At etween Unit 1	vide ple of [1LW-TK- tachment D) to and Unit 2.
3.2.2.16	CR03-04830, Containment Vacuum Pump Repl Term. CA-03, Revise Unit 1 Containment Vacu procedure 1/2-ODC-2.02, Attachment A, Table	acement Increa ium Pump Sour 2.1-1a.	ses ODCM Source rce-Term in ODCM
3.2.2.17	CR03-06123, Enhance Table 3.3-6 of 1/2-ODC Method of Monitoring. CA-01, Revise Table 3. Eberline SPING Channel 5 as an additional 2 nd F Range Noble Gas Effluent Monitors are Inopera	-3.03 to Add M 3-6 and Table ⁴ PMM when the ble.	fore Preplanned 4.3-3 to allow use of Unit 1 Mid or High
3.2.2.18	CR03-06281, Gaseous Tritium Sampling Requir Unclear for Chemistry. CA-01, Revise procedur RP & Chemistry sampling of Gaseous Effluent F pathways need sampled for compliance to ODC	red by ODCM (re Attachment I Pathways to sho M Control 3.11	(1/2-ODC-3.03) X Table 4.11-2 for w which effluent .2.1 requirements.
3.2.2.19	CR03-07487, Results of NQA Assessment of th CA-01, Revise Calculation Package No. ERS-A "Surface Water Supply" per guidance presented 05, Revise 1/2-ODC3.03 Control 3.11.1.4 to up outside storage tanks.	e Radiological 1 TL-95-007 to c in NUREG-080 date the activity	Effluents Program. clarify the term 00 SRP 15.7.3. CA- y limits for the
3.2.2.20	CR03-07668, Benchmark Effluent & Environme Presented at 13 th REMP/RETS Workshop. CA- Attachment K Table 4.11-2 to reduce the amoun during a power transient.	ental Programs 01, Evaluate pr at of Effluent Sa	VS Papers ocedure amples obtained
3.2.2.21	CR03-09288, LAR 1A-321 & 2A-193, Increase CA-19, Review LAR 1A-321/2A-193 to identify procedures, programs, manuals, and applicable p will need to be revised to support implementing	d Flexibility in N the affected Ra plant modification the LAR.	Mode Restraints. ad Effluent on documents that
3.2.2.22	CR03-09959, RFA-Rad Protection Provide Clar Tritium Sample. CA-01, Revise ODCM procede (Table 4.11-2 note c & note e) to allow sampling atmosphere.	ification to OD ure 1/2-ODC-3 g of the appropr	CM 1/Day Air .03 Attachment K riate building

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3.2.2.23	CR03-11726, Typographical Error Found in ODCM CODCM procedure 1/2-ODC-3.03, Attachment O, Contypographical error. Specifically, the final word in Actinad" to "and".	3.11.2.5. (ntrol 3.11.2 tion (a) ne	CA-01, Revise 2.5 to correct a reds changed from
3.2.2.24	CR04-00149, Radiation Protection Performance Revi CA-12. Incorporate the Global Positioning System [G Environmental Monitoring Program.	ew Commi PS] in the	ittee Action Items. Radiological
3.2.2.25	CR04-01643, Procedure Correction – Typographical Revise ODCM procedure 1/2-ODC-3.03, Attachment to correct a typographical error. Specifically, the Ass Gauge used for measurement of sample flow (from the needs changed from [PI-1GW-13] to [PI-1GW-135].	Error in th F, (Table et Number e Alternate	e ODCM. CA-01, 3.3-13 and 4.3-13) for the Vacuum e Sampling Device)
3.2.2.26	CR04-02275, Discrepancies in Table 3.3-13 of the OI procedure 1/2-ODC-3.03, Attachment F, (Table 3.3-1 clarification that the "Sampler Flow Rate Monitors are "Particulate and Iodine Sampling".	DCM. CA 3 and 4.3- e the device	-01, Revise ODCM 13) to add es used for
3.2.2.27	CR05-01169, Chemistry Action Plan For Transition o CA-14 thru CA-21, Revise ODCM procedures to cha "Manager, Radiation Protection" to Manager Nuclear Chemistry".	f RETS, R nge docum Environm	EMP and ODCM, tent owner from ental &
3.2.2.28	CR05-01390, Include GPS data in 2004 REMP Report 1/2-ENV procedures. CA-02, revise ODCM procedure an update of REMP sample locations (using the GPS s	t and relat re 1/2-OD Satellite da	ed 1/2-ODC and C-2.03 to include ta).
3.2.2.29	CR05-03306, Incorporated Improved Technical Speci transfer of programmatic controls for BV-2 Noble Gas [2MSS-RQ101A], [2MSS-RQ101B] and [2MSS-RQ1 Specifications to ODCM procedure 1/2-ODC-3.03 (A 4.3-3). This was permitted via Unit 1/2 Technical Spe 278/161.	fications (I s Effluent S .01C] from ttachment cification	TS). This includes Steam Monitors In the Technical D Tables 3.3-6 and Amendments No.
3.2.2.30	CR05-03854, ODCM Figure for Liquid Effluent Relea CA-01, revise ODCM procedure 1/2-ODC-2.01 (ODC Attachment D, Figure 1.4-3 to incorporate a modified No. 8700-RM-27F.	se Points I CM: Liquid version of	Needs Updated. l Effluents) Plant Drawing

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3.2.2.31	CR06-04908, Radiation Monitor Alarm Setpoint Disc ODCM procedure 1/2-ODC-2.01 to update the alarm and [RM-1DA-100] for incorporation of the Extended Amendment No. 275. Also, CA-04; revised ODCM p add a"≤" designation to all alarm setpoints for Unit 1 gas effluent monitors.	setpoints c setpoints c d Power Up rocedure 1/ and Unit 2	CA-03; revise of [RM-1RM-100] orate per Unit 1 TS 2-ODC-2.02 to low range noble
3.2.2.32	CR06-6476, Procedure 1/2-ODC-2.01 Needs Revised revise ODCM procedure 1/2-ODC-2.01 to update the RQ101] for incorporation of the Extended Power Up Amendment No. 156.	l for Plant U alarm setp rate per Uni	Jprate. CA-01; oints of [2SWS- it 2 TS
3.2.2.33	SAP Order 200197646-0110: Revise ODCM procedu 1/2-HPP-3.06.001, 1/2-ENV-05-01, Form 1/2-HPP-3 Form 1/2-ENV-05.1.F05 to incorporate revised outsid limits via Calculation Package No. ERS-ATL-95-007,	re 1/2ODC .06.001.F0 de liquid sto , R2.	-3.03, 5 and prage tank activity
3.2.2.34	3.2.2.34 SAP Order 200240681: Revise ODCM procedure 1/2-ODC-3.03 (Attachment E Table 3.3-12) to add an alternate Action when the primary Flow Rate Measurement Device [FT-1CW-101-1] is not OPERABLE. The alternate Action (25A) uses local measurements (as described in 1MSP-31.06-I) to determine a total dilution flow rate during liquid effluent releases.		
3.2.2.35	CR06-04944: ODCM 3.03 Attachment E conflict betw Statement. CA-01, revise ODCM procedure 1/2-ODC clarify Applicability for tank level indicating devices is	ween Applic C-3.03, Atta during add	cability and Action achment E to ition to the tank.
3.2.2.36	CR07-12924 and SAP Order 200247228-0410: Revise 1/2-ODC-3.03 (Attachment F Tables 3.3-13 and 4.3-1 Location of the Sampler Flow Rate Monitors for the E pathways. Specifically, the procedure was changed to [2HVS-FIT101-1] instead of [2HVS-FIT101], [2RM0 [2RMQ-FIT301], [2HVL-FIT112-1] instead of [2HVS [2RMQ-FIT303-1] instead of [2RMQ-FIT303].	e ODCM pr 3) to clarif 3V-2 gaseou refer to Fu Q-FIT301-1 L-FIT112],	rocedure y the Functional us effluent release nctional Location] instead of and
3.2.3 <u>Calc</u>	ulation Packages:		· .
3.2.3.1	ERS-ATL-83-027; Liquid Waste Dose Factor Calcula and Later	tion for HP	M-RP 6.5, Issue 3
3.2.3.2	ERS-SFL-85-031; Gaseous Effluent Monitor Efficience	y Data	
3.2.3.3	ERS-ATL-86-008; ODCM Alarm Setpoint Revisions	for Gaseous	s Monitors
3.2.3.4	ERS-HHM-87-014; Unit 1/2 ODCM Gaseous Effluen Determinations	t Monitor A	Marm Setpoint

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3.2.3.5 ERS-ATL-87-026; BVPS-1 and BVPS-2 ODCM T Factor Justification				
3.2.3.6	ERS-ATL-89-014; Verification/Validation of ODCM	R Values		
3.2.3.7 ERS-ATL-90-021; Justification for Removal of Technical Specification Process Flowrate Measurement Requirements for 2RMQ-RQ301, 2RMQ-RQ303 and 2HVL-RQ112				
3.2.3.8	ERS-ATL-95-006; Re-evaluation of TS/ODCM SR's Notes e and g of TS/ODCM Table 4.11-1	4.11.1.1.3	, 4.11.1.1.4 and	
3.2.3.9	ERS-ATL-95-007; Verification of Outside Storage Ta TS 3.11.1.4	ank Activit	y Limit of	
3.2.3.10	Stone and Webster UR(B)-160; BVPS Liquid Radwas Concentrations - Expected and Design Cases (Per Uni	ste Release t and Site)	es and	
3.2.3.11	3.2.3.11 Vendor Calculation Package No. 8700-UR(B)-223, Impact of Atmospheric Containment Conversion, Power Uprate, and Alternate Source Terms on the Alarm Setpoints for the Radiation Monitors at Unit 1			
3.2.3.12	Engineering Change Package No. ECP-04-0440, Exte	nded Powe	er Uprate (Unit 1)	
3.2.3.13	Vendor Calculation Package No. 8700-UR(B)-508, In Containment Conversion, Power Uprate, and Alternate Setpoints for the Radiation Monitors at Unit 2	npact of A e Source T	tmospheric Ferms on the Alarm	
3.2.3.14	Engineering Change Package No. ECP-04-0440, Exte	nded Powe	er Uprate (Unit 2)	
3.2.3.15	ERS-MPD-93-007, BVPS-1 Gaseous Radioactivity M Levels	lonitor Em	ergency Action	
3.2.4 <u>Inter</u>	rnal Letters:			
3.2.4.1	DLC Response to NRC Unresolved Item 50-334/83-3 Study- Particle Distribution Evaluation, November 26,	0-05, Radi 1986.	ation Monitor	
3.2.4.2	ND1SHP:776, BVPS-1 ODCM Table 2.2-2, Appendix	GB, Februa	ary 12, 1988	
3.2.4.3	ND3NSM:3431; Technical Specification Verification I	Effort, Aug	gust 11, 1988 1	
3.2.4.4	NDLNSM:3522; Technical Specification Verification I September 14, 1988	Effort Che	cklist,	
3.2.4.5	ND1NSM:3652; Technical Specification Verification E	Effort, Nov	vember 21, 1988	
3.2.4.6	NPD3SHP:2466; Self Assessment of the Liquid and G BVPS - Final Report, July 16, 1997	aseous Eff	luent Processes at	

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3.2.4.7	NPD3SHP:2257; ODCM Liquid Waste Recirculation	Rates, Fel	oruary 11, 1998
3.2.4.8	NPD3SHP:2643; Action 28 of ODCM Appendix C T	able 3.3-13	3, January 14, 1999
3.2.4.9	ND3MNO:4309; Response to Request for Technical April 20, 1999.	Specificatio	on Interpretation,
3.2.5 <u>Cor</u>	stractor Technical Evaluation Reports:		
3.2.5.1	EGG-PHY-8194; Technical Evaluation Report for the Updated through Issue 2, Revision 1, Beaver Valley F September 1988	e Evaluatio Power Stati	n of ODCM ion, Unit 1,
3.2.5.2	EGG-PHY-8217; Technical Evaluation Report for the updated through Issue 1, Revision 2, Beaver Valley Pe September 1988	e Evaluatio ower Statio	n of ODCM on, Unit 2,
3.2.5.3	NUS-2173; Development of Terrain Adjustment Factor Valley Power Station for the Straight-Line Atmospher June 1978	ors For Us ric Dispers	e at the Beaver ion Model,
3.2.5.4	UCRL-50564, Concentration Factors of Chemical Ele Organisms, Revision 1, 1972	ments in E	dible Aquatic
3.2.6 <u>NR</u>	<u>C Letters</u> :		
3.2.6.1	Unit 1 Technical Specification Amendment 66, March	28, 1983	
3.2.6.2	Beaver Valley Unit 2 - Offsite Dose Calculation Manu July 14, 1987	al, ODCM	. (TAC 63996),
3.2.6.3	Beaver Valley Units 1 and 2 - Acceptance of the Offsi (TAC 93996 and 67421), March 2, 1989	te Dose Ca	lculation Manuals
3.2.6.4	Unit 1/2 Technical Specification 6.8.6, including Amer (LAR 1A-175/2A-37), Implemented August 7, 1995	ndments 1A	A-188/2A-70
3.2.6.5	Unit 1/2 Technical Specification 6.8.6, including Amer (LAR's 1A-231/2A-101), Implemented December 1, 1	ndments 17 995	A-194/2A-77
3.2.6.6	Unit 1/2 Technical Specification Figure 5.1-2, includin Amendments 1A-202/2A-83 (LAR 1A-234/2A-107, In	g mplemente	d June 9, 1997
3.2.6.7	Unit 1/2 Technical Specifications 6.9.1.10 and 6.9.2, in Amendments 1A-220/2A-97 (LAR 1A-246/2A-116), 1	ncluding Implemente	ed May 20, 1999
3.2.6.8	Unit 1/2 Technical Specification 3.3.3.1, including Am (LAR 1A-287/2A-159), Implemented April 11, 2002	endments	1A-246/2A-124

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3.2.6.9	Unit 1/2 Technical Specifications 3.11.1.4, 3.11.2.5, (Amendments 1A-250/2A-130 (LAR 1A-291/2A-163) 2002	5.8.6, and 6), Impleme	5.9.2 including nted August 7,		
3.2.7 <u>NU</u>	<u>REG's</u> :				
3.2.7.1 NUREG-0017, Calculation of Releases of Radioactive Materials in Gaseous and Liquid Effluents from Pressurized Water Reactors, (PWR- Gale Code), Revision April 1985					
3.2.7.2	NUREG 0133; Preparation of Radiological Effluent T Nuclear Power Plants, October 1978	Cechnical S	pecification for		
3.2.7.3	NUREG-0172; Age-Specific Radiation Dose Commit Chronic Intake, November 1977	ment Facto	ors for a One-Year		
3.2.7.4	NUREG-0324, XOQDOQ, Program for the Meteorol Releases at Nuclear Power Stations, September 1977	logical Eva	luation of Routine		
3.2.7.5	NUREG-0472; Radiological Effluent Technical Speci	fications fo	r PWR's.		
3.2.7.6	NUREG-0800, Standard Review Plan, Postulated Rac Liquid-Containing Tank Failures, July 1981	dioactive R	eleases Due to		
3.2.7.7	3.2.7.7 NUREG-1301; Offsite Dose Calculation Manual Guidance: Standard Radiological Effluent Controls for Pressurized Water Reactors (Generic Letter 89-01, Supplement No. 1), April 1991				
3.2.7.8	NUREG-1431, Standard Technical Specification - We Specifications	estinghouse	e Plants		
3.2.7.9	NUREG/CR-2919; Meteorological Evaluation of Rou Nuclear Power Stations, September 1982	itine Efflue	nt Releases At		
3.2.8 <u>Reg</u>	ulatory Guides:				
3.2.8.1	RG-1.23, Meteorological Measurement Program For	Nuclear Po	wer Plants		
3.2.8.2	RG-1 109, Calculation of Annual Doses to Man From Effluents for the Purpose of Evaluating Compliance w Appendix I, April 1977	Routine R ith 10 CFR	eleases of Reactor 2 Part 50,		
3.2.8.3	RG-1.111; Methods For Estimating Atmospheric Tran Gaseous Effluents In Routine Releases From Light-W Revision 1, July 1977	nsport And ater-Coole	Dispersion of d Reactors,		

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3.2.8	 RG-1.113; Estimating Aquatic Dispersion of Effluer Routine Reactor Releases For The Purpose of Imple April 1977 	nts From Ac ementing Ap	ccidental and ppendix I,	
3.3 <u>Co</u>	<u>mmitments</u>			
, 3.3.1	10 CFR Part 20, Standards for Protection Against Radiation	on		
3:3.2	10CFR20 1302, Compliance with Dose Limits for Individu	ual Member	s of the Public	
3.3.3	10 CFR Part 50, Domestic Licensing of Production and U	tilization Fa	cilities	
3.3.4	10CFR50.36a, Technical Specifications on Effluents from	Nuclear Po	wer Reactors	
3.3.5	Appendix I to 10 CFR Part 50, Numerical Guides For Des Conditions For Operation to Meet The Criterion "As Low For Radioactive Material in Light-Water-Cooled Nuclear I	sign Objecti As Reason Power Reac	ves and Limiting ably Achievable" ctor Effluents	
3.3.6	40 CFR Part 141			
3.3.7	40 CFR Part 190, Environmental Radiation Protection Standards For Nuclear Power Operations			
3.3.8	Licensee Response to NRC Unresolved Item 50-334/83-30 Particle Distribution Evaluation showed that the Licensee factors to determine particulate activity in samples obtaine pathways.	0-05 The I must contin d from the e	Radiation Monitor ue to use correction effluent release	
3.3.9	CR 05-03854, ODCM Figure for Liquid Effluent Release I revise ODCM procedure 1/2-ODC-2.01 (ODCM: Liquid Figure 1.4-3 to incorporate a modified version of Plant Dra	Points Need Effluents) A awing No. 8	l Updated. CA-01, Attachment D, 3700-RM-27F.	
4.0 <u>RE</u>	CORDS AND FORMS			
4.1 <u>Rec</u>	<u>cords</u>			
4.1.1	Any calculation supporting ODCM changes shall be documented, as appropriate, by a retrievable document (e.g.; letter or calculation package) with an appropriate RTL number.			
4.1.2	Changes to the ODCM shall be documented and records o accordance with the applicable record retention provisions program description included in the Updated Final Safety A	f reviews sh of the qual Analysis Re	nall be retained in ity assurance port.	
4.2 <u>For</u>	<u>rms</u>			
421	None			

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5.0	PRECAUTIONS AND LIMITATIONS		
5.1	This OFFSITE DOSE CALCULATION MANUAL (ODCM) pr methodologies to be used by Beaver Valley Power Station Unit (BV-2) to assure compliance with the Administrative Controls S Technical Specifications. They are intended to show compliance 10 CFR 50.36a, ^(3.2.2) Appendix I of 10 CFR Part 50, ^(3.2.3) and 40	rovides the 1 and Unit ection of the with 10 C CFR Part 1	information and 2 (BV-1) and the operating FR 20.1302, $^{(3.2.1)}$ 90. $^{(3.2.4)}$
5.2	This ODCM is based on the NUREG's and Generic Letter docur Nuclear Regulatory Commission. ^(3,1,1,3,1,2,3,1,3,3,1,4) Specific plant implementation of the ODCM are included in various site procedutilized by the operating staff to assure compliance with Technic CONTROLS Procedure of the ODCM. ^(3,1,5)	nents from procedures lures and de al Specifica	the United States s for ocuments, and are ttions and the
5.3	The ODCM has been prepared as generically as possible in order future versions. However, some changes to the ODCM may be a such changes will be properly prepared, reviewed, and approved Administrative Control Section of the Technical Specifications. ODCM require review and acceptance by the PORC.	to minimiz necessary in as indicate Additionall	te the need for in the future. Any d in the y, changes to the
5.3.1	An implementation procedure for control of the ODCM is in 1640. ^(3.1.6)	cluded in 1	/2-ADM-
5.4	This procedure also contains information that was previously conprevious BV-1 and 2 Offsite Dose Calculation Manual.	tained in A	ppendix F of the
5,4,1	In regards to this, the Tables that were transferred from App ATTACHMENTS of this procedure will still contain a prefix	endix F to denoting	the appropriate an "F".
5.5 '	This procedure includes Improved Technical Specifications ([ITS applicable to current Technical Specifications ([CTS]) informatic [ITS] . The [CTS] information shall be used prior to the [ITS] effective date.	5]) information that is N frective date	tion that is NOT OT applicable in e. The [ITS]
6.0 <u>4</u>	ACCEPTANCE CRITERIA		
6.1 /	All changes to this procedure shall contain sufficient justification he level of radioactive Effluent Control required by 10 CFR 20.1 CFR 50.36a and Appendix I to 10 CFR 50, and not adversely impreliability of effluent dose or alarm setpoint calculation. ^(3.1.7)	that the cha 302, 40 CF pact the acc	ange will maintain R Part 190, 10 curacy or
6.1.1	All changes to this procedure shall be prepared in accordance and $1/2$ -ADM-1640. ^(3.1.6)	e with 1/2-1	ADM-0100 ^(3.1.7)
6.1.2	All changes to this procedure shall be reviewed and approved NOP-SS-3001 ^(3.1.8) and 1/2-ADM-1640. ^(3.1.6)	in accorda	ance with

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7.0 <u>PREREQUIS</u>	<u>IITES</u>		
7.1 The user of the	is procedure shall be familiar with ODCM s	tructure and con	itent.
8.0 <u>PROCEDUR</u>	<u>E</u>		
8.1 <u>Description of</u>	ODCM Structure		
8.1.1 <u>1/2-ODC</u> -(formerly:	1.01, ODCM: Index, Matrix and History c ODCM Index and Appendix F)	f ODCM chang	es
8.1.1.1 Hist	tory of ODCM Changes		
8.1.1.2 Sun	nmary of ODCM References		
8.1.1.3 List	of Tables (ATTACHMENT A)		
8.1.1.4 List	of Figures (ATTACHMENT B)		
8.1.1.5 Mat	rix of Procedures Used to Meet ODCM Co	ontrols (ATTAC	HMENT C)
8.1.1.5.1	BV-1 Radiation Monitor Surveillances		
8.1.1.5.2	BV-1 Liquid Effluent Monitor Surveillan	ces	:
8.1.1.5.3	BV-2 Liquid Effluent Monitor Surveillan	ces	
8.1.1.5.4	BV-1 Gaseous Effluent Monitor Surveilla	ances	
8.1.1.5.5	BV-2 Gaseous Effluent Monitor Surveilla	ances	
8.1.1.5.6	BV-1 and 2 Liquid Effluent Concentratio	n Surveillances	
8.1.1.5.7	BV-1 and 2 Liquid Effluent Dose Surveil	lances	
8.1.1.5.8	BV-1 and 2 Liquid Effluent Treatment Su	irveillances	
8.1.1.5.9	BV-1 and 2 Gaseous Effluent Air Dose S	urveillances	
8.1.1.5.10	BV-1 and 2 Gaseous Effluent Particulate	and Iodine Surv	eillances
8.1.1.5.11	BV-1 and 2 Gaseous Effluent Treatment	Surveillances	
8.1.1.5.12	BV-1 and 2 Gaseous Effluent Total Dose	Surveillances	
8.1.1.5.13	BV-1 and 2 Gaseous Effluent REMP Sur	veillances	

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8.1.1.5.14 BV-1 and 2 Gaseous Effluent Land Use Census			nces
8.1.1.5.15	BV-1 and 2 Gaseous Effluent Interlaboratory C Surveillances	omparisor	n Program
8.1.2 <u>1/2-ODC-</u> (formerly;	2.01, ODCM: Liquid Effluents ODCM Sections 1 and 5)		
8.1.2.1 Alar	m Setpoints		
8.1.2.1.1	BV-1 Setpoint Determination Based On A Cons	servative N	Mix
8.1.2.1.2	BV-1 Setpoint Determination Based On Analyst	is Prior To	o Release
8.1.2.1.3	BV-2 Setpoint Determination Based On A Conservative Mix		
8.1.2.1.4	BV-2 Setpoint Determination Based On Analysi	is Prior To	Release
8.1.2.2 Com	pliance With 10 CFR 20 EC Limits		
8.1.2.2.1	Batch Releases		
8.1.2.2.2	Continuous Releases		
8.1.2.3 Com	pliance With 10 CFR 50 Dose Limits		
8.1.2.3.1	Cumulation Of Doses		
8.1.2.3.2	Projection Of Doses		
8.1.2.4 Liqu	id Radwaste Treatment System		
8.1.2.4.1	BV-1 Liquid Radwaste Treatment System Comp	ponents	
8.1.2.4.2	BV-1 Laundry and Contaminated Shower Drain	System C	omponents
8.1.2.4.3	BV-2 Liquid Radwaste Treatment System Comp	oonents	
8.1,2.5 Site	Boundary for Liquid Effluents		
8.1.2.5.1	Liquid Effluent Site Boundary		

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8.1.3 <u>1/2-ODC-2.02, ODCM: Gaseous Effluents</u> (formerly; ODCM Sections 2 and 5)				
8.1.3.1 Alarm Setpoints				
8.1.3.1.1 BV-1 Setpoint Determination Based On A Calc	culated Mix	ζ į		
8.1.3.1.2 BV-1 Setpoint Determination Based On Analys	sis Prior To	Release		
8.1.3.1.3 BV-2 Setpoint Determination Based On A Calc	ulated Mix	5		
8.1.3.1.4 BV-2 Setpoint Determination Based On Analys	is Prior To	Release		
8.1.3.1.5 BV-1/2 Setpoint Determination Based On A Ca	alculated M	lix		
8.1.3.1.6 BV-1/2 Setpoint Determination Based On Anal	ysis Prior T	lo Release		
8.1.3.2 Compliance With 10 CFR 20 Dose Rate Limits				
8.1.3.2.1 Dose Rate Due To Noble Gases				
8.1.3.2.2 Dose Rate Due To Radioiodines And Particulates				
8.1.3.3 Compliance With 10 CFR 50 Dose Limits				
8.1.3.3.1 Doses Due To Noble Gases				
8.1.3.3.2 Doses Due To Radioiodines And Particulates				
8.1.3.4 Gaseous Radwaste Treatment System				
8.1.3.4.1 BV-1 Gaseous Radwaste Treatment System Co	mponents			
8.1.3.4.2 BV-2 Gaseous Radwaste Treatment System Co.	mponents			
8.1.3.5 Site Boundary for Gaseous Effluents				
8.1.4 <u>1/2-ODC-2.03, ODCM: Radiological Environmental Monit</u> (formerly; ODCM Section 3)	oring Prog	<u>ram</u>		
8.1.4.1 Program Requirements				
8.1.5 <u>1/2-ODC-2.04, ODCM: Information Related to 40 CFR 19</u> (formerly; ODCM Section 4)	<u>0</u>			
8.1.5.1 Compliance with 40 CFR 190 Dose Limits				
8.1.5.2 Report Requirements				

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	8.1.5.3 Inside the Site Boundary Radiation Doses					
	8.1.5.3	.1 Gaseous	Effluent Site Boundary	~		
	8.1.6 <u>1/2-</u> (for	<u>-ODC-3.01, ODC</u> merly; ODCM Ap	M: Dispersion Calculational Procedur	re and Sour	ce Term Inputs	
	8.1.6.1	Dispersion and	Deposition Parameters			
	8.1.6.2	BV-1 and 2 Re	lease Conditions			
	8.1.6.3	BV-1 Liquid So	ource Term Inputs			
	8.1.6.4	BV-2 Liquid So	ource Term Inputs			
	8.1.6.5	BV-1 Gaseous	Source Term Inputs			
	8.1.6.6	BV-2 Gaseous	Source Term Inputs			
	8.1.7 <u>1/2-</u> (for	ODC-3.02, ODC merly; ODCM Ap	M: Bases for ODCM Controls opendix D)			
	8.1.7.1	Bases 3.3.3.1:	Radiation Monitoring Instrumentation	l	- -	
	8.1.7.2	Bases 3.3.3.9:	Radioactive Liquid Effluent Monitorin	ig Instrume	ntation	
	8.1.7.3	Bases 3.3.3.10:	Radioactive Gaseous Monitoring Inst	trumentatio	n	
	8.1.7.4	Bases 3.11.1.1:	Liquid Effluent Concentration			
	8.1.7.5	Bases 3.11.1.2:	Liquid Effluent Dose			
	8.1.7.6	Bases 3.11.1.3:	Liquid Radwaste Treatment System			
	8.1.7.7	Bases 3.11.1.4:	Liquid Holdup Tanks			
	8.1.7.8	Bases 3.11.2.1:	Gaseous Effluent Dose Rate			
	8.1.7.9	Bases 3.11.2.2:	Dose- Noble Gases			
	8.1.7.10	Bases 3.11.2.3: and Radionuclid	Dose - Radioiodines, Radioactive Ma les Other Than Noble Gases	terial in Par	ticulate Form,	
	8.1.7.11	Bases 3.11.2.4:	Gaseous Radwaste Treatment System	1		
	.8.1.7.12	Bases 3.11.2.5:	Gas Storage Tanks			
	8.1.7.13	Bases 3.11.4.1:	Total Dose			

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8.1.7.14	Bases 3.12.1: REMP Program Requirements		
8.1.7.15	Bases 3.12.2: REMP - Land Use Census		
8.1.7.16	Bases 3.12.3: REMP - Interlaboratory Comparison I	Program	
8.1.8 <u>1/2-</u> (for	ODC-3.03, ODCM: Controls for RETS and REMP Pr merly; ODCM Appendix C)	ograms	
8.1.8.1	Controls 3.0.1 thru 3.0.4: Applicability		
8.1.8.2	Controls 4.0.1 thru 4.0.4: Surveillance Requirements	5	
8.1.8.3	Control 3.3.3.1: Radiation Monitoring Instrumentati	on	
8.1.8.4	Control 3.3.3.9: Radioactive Liquid Effluent Monito	ring Instrur	nentation
8.1:8.5	Control 3.3.3.10: Radioactive Gaseous Monitoring I	nstrumenta	tion
8.1.8.6	Control 3.11.1.1: Liquid Effluent Concentration		
8.1.8.7	Control 3.11.1.2: Liquid Effluent Dose		
8.1.8.8	8.1.8.8 Control 3.11.1.3: Liquid Radwaste Treatment System		
8.1.8.9	Control 3.11.1.4: Liquid Holdup Tanks		
8.1.8.10	Control 3.11.2.1: Gaseous Effluent Dose Rate		
8.1.8.11	Control 3.11.2.2: Dose- Noble Gases		
8.1.8.12	Control 3.11.2.3: Dose - Radioiodines, Radioactive I and Radionuclides Other Than Noble Gases	Material in 1	Particulate Form,
8.1.8.13	Control 3.11.2.4: Gaseous Radwaste Treatment Syst	em	
8.1.8.14	Control 3.11.2.5: Gas Storage Tanks		
8.1.8.15	Control 3.11.4.1: Total Dose		
8.1.8.16	Control 3.12.1: REMP Program Requirements		
8.1.8.17	Control 3.12.2: REMP - Land Use Census		
8.1.8.18	Control 3.12.3: REMP - Interlaboratory Comparison	Program	
8.1.8.19	Control 6.9.2: Annual REMP Report		
8.1.8.20	Control 6.9.3: Annual RETS Report		

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8.2 <u>History Of OE</u>	OCM Changes					
8.2.1 <u>Change (1</u>) of BV-1 ODCM (Issue 1), Effective January, 1	1984				
8.2.1.1 This is the initial issue of the BV-1 ODCM, as-prepared for implementation of the Radiological Effluent Technical Specifications (RETS). Implementation of this manual was commensurate with Amendment No. 66 to the Unit 1 Technical Specifications as approved by the NRC on March 28, 1983.						
8.2.2 <u>Change (2</u>) of BV-1 ODCM (Issue 1, Rev 1), Effective Oc	tober, 1984	<u>k</u>			
8.2.2.1 A de	escription of the changes implemented with this r	evision are	as follows:			
8.2.2.1.1	<u>Section 1.0</u> : Table 1.3-1 was revised to include nuclides presently identified at BVPS and not i	e liquid dos ncluded in t	e factors for the original table.			
8.2.2.1.2	<u>Section 2.0</u> : Equations 2.1-19 and 2.1-22 were Meeting No. BVPS-RSC-1-84 on January 31, revised to clarify flow rate terminology.	e revised as 1984. The	approved at RSC equations were			
8.2.2.1.3	<u>Section 2.0</u> : Section 2.2.2 was revised to delet pathways for gaseous dose rate calculations of radionuclides in particulate form with half lives	e the food a I-131, tritic greater that	ind ground im, and n 8 days.			
8.2.2.1.4	Section 2.0: Table 2.2-13 was revised to include maximum organ. Also, the receptor was change addition/deletion of nuclides to be consistent we Specifications and nuclides identified at BV-1.	le 7 organs ged from inf ith the Tecl	rather than only the ant to child, and nnical			
8.2.3 <u>Change (3</u>) of BV-1 ODCM (Issue 1, Rev 2), Effective Jul	<u>y, 1986</u>				
8.2.3.1 A de follo	escription of the changes that were implemented ws:	with this rev	vision are as			
8.2.3.1.1	Section 1.0: Provide a flow based monitor setp Section 1.1.2. This change makes Section 1.1.1 and current procedures.	oint adjustn 2 consistent	nent factor in with Section 1.1.1			
8.2.3.1.2	Section 1.0 and 2.0: Revise the 31-day dose promethodology in Sections 1.3.2, 2.3.1.2, and 2.3 the 31-day dose projection limits and changed t methodology to be consistent with proposed so	ojection lim 0.2.2. This he dose pro ftware.	its and change corrected jection			

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8.2.3.1.3	Section 2.0: Revise the Gaseous Effluent Mon and 2.1.2. They were revised due to pressure detectors, changes in isotopic literature, and th 5 alternate monitor data. The calculations sup in Calculation Packages ERS-SFL-85-031 and	itor Setpoir corrections he addition of porting this ERS-ATL	nts in Sections 2.1.1 determined for the of SPING Channel item are contained -86-008.
8.2.4 <u>Change (</u> <u>1987</u>	(4) of $BV-1$ ODCM (Issue 2), and $BV-2$ ODCM (<u>Issue I, Re</u>	v 1), Ellective July,
8.2.4.1 Wi rev cha	th the start-up of BV-2 in the second half of 1987 vision and the BV-2 ODCM required initial implen anges are as follows:	, the BV-1 nentation.	ODCM required A description of the
8.2.4.1.1	Produce functionally compatible BV-1 and BV dose rate limits and meet regulatory requireme scope of the revisions to the Unit 1 ODCM, it for clarity, the draft BV-2 ODCM previously s regarded as Issue 1 (historical) and operation of Revision 1 of the BV-2 ODCM.	V-2 ODCMs nts. Note t was re-issu- ubmitted to of BV-2 beg	which address site hat due to the ed as Issue 2. Also, the NRC was gan with Issue 1,
8.2.4.1.2	Section 1.0: A shared liquid radwaste system, processing, the sharing of dilution water, and t according to NUREG-0133 was incorporated in	permitting r he apportio into both O	nixing of waste for nment of dose DCMs.
8.2.4.1.3	Section 2.0: A shared elevated gaseous radwas mixing of gaseous radwaste and the apportion NUREG-0133 was incorporated into both OD	ste system, p nent of dose CMs.	permitting the e, according to
8.2.4.1.4	Section 2.0: Separate ground level gaseous rele BV-1 ODCM was updated to incorporate the I base. Gaseous source terms were revised to th BV-2 FSAR, and terms were added for calcula release.	eases were f BV-2 five yeat calculate tion of a tur	maintained. The ear meteorology d for BV-1 in the rbine building
8.2.4.1.5	<u>Section 2.0</u> : The gaseous effluent monitor alarr were revised as required by revisions to meteor efficiencies, and revised percentages of site dos	m setpoints cology, sour se rate limits	of both ODCMs ree terms, monitor s.
8.2.4.1.6	Section 2.0: Formal justification was provided described in the Containment Purge Dose Rate dose rate for a Containment Purge may be aver exceed 960 minutes. Since the Containment air 60 minutes, then the maximum value for "T" is minutes = 16).	for use of th calculation raged over a r volume ch 16 (i.e., 96	ne "T" factor as s. Whereas, the a time period not to ange time period is 0 minutes/60

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8.2.5 <u>Change (5) of</u> <u>Effective Dece</u>	BV-1 ODCM (Issue 2, Rev 1), and BV-2 OE ember, 1987	OCM (Issue	1, Revision 2),
8.2.5.1 <u>Section</u> note con titled Be 63996).	2.0: Sections 2.1.3 and 2.1.4 of both ODCMs accerning noble gas nuclides as requested by a leaver Valley Unit 2 - Offsite Dose Calculation	were chan NRC letter Manual, O	ged to delete a dated July 14, 1987 DCM (TAC
8.2.6 <u>Change (6) of</u> <u>Effective June</u>	BV-1 ODCM (Issue 2, Rev 2), and BV-2 OD , 1989	OCM (Issue	<u>1, Rev 3),</u>
8.2.6.1 A descri	ption of the changes implemented with this re	vision are a	s follows:
$\begin{array}{c} 8.2.6.1.1 & \underline{Se}\\ an\\ the\\ justice$	ection 1.0 and 2.0: Both ODCMs were revised d 2.4. This addition gives a description of and e Liquid Radwaste System and the Gaseous R stification 1)	for addition fincludes f adwaste Sy	on of Sections 1.4 low diagrams of ystem. (See
8.2.6.1.2 <u>Se</u> dif Ju:	ection 1.0: Corrected typos to BV-1 ODCM E ferentiation between the two fs, and add the o stification 1)	quation 1.1 division sign	1-8 to show n. (See
8.2.6.1.3 <u>Se</u> the	ction 1.0: Re-define F_k in equation 1.3-1 of bo e NRC. (See Justification 1)	oth ODCM	s, as allowed by
8.2.6.1.4 <u>Se</u> OI OI Eq 0.7	ction 1.0 and 2.0: Typos were corrected to the DCM equation 1.3-7; add a division sign betwee DCM equation 1.3-8; add a division sign betwee puation 2.1-20 of both ODCMs; change the HI 70 to 0.33. (4) Equation 2.1-24 of both ODC SP multiplier from 0.70 to 0.33. (See Justification 2.1-24)	e following een the brac een the brac HSP to HSI Ms, change tion 1)	(1) BV-1 ckets. (2) BV-1 ckets. (3) P multiplier from e the HHSP to
8.2.6.1.5 <u>Se</u> wc 2.3 cun pun Ta OI	ction 1.0 and 2.0: Typos were also corrected a ords "from each reactor unit" to five places (Se 3.1.2, and 2.3.2.2) of both ODCMs. This ensu- rrent requirements of the Technical Specification inctuation in Section 2.3.2.1 of the BV-1 ODC ble 3.0-1 of both ODCMs. (4) Correct typos OCMs.	as follows: ections 1.3. ures complia ons. (2) C 2M. (3) Co s in Figure 1	(1) Add the 1, 1.3.2, 2.3.1.1, ance with the Correct prrect typos in 3.0-3 of both
8.2.6.1.6 <u>Sea</u> Jus	ction 2.0: Add a Reference to Section 2 of the stification 3)	BV-1 OD	CM. (See
8.2.6.1.7 <u>Sea</u> Th Spo	ction 2.0: Add the words "from the site" to Se is ensures compliance with the current require ecifications. (See Justification 2)	ection 2.2.2 ments of th	of both ODCMs. he Technical

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8.2.6.1.8	Section 2.0: Revise BV-1 ODCM Table 2.2-2 t iodine radionuclide mix for the Unit 1 Ventilation for Xe-135m in the Containment Vacuum Pump	to change th on Vent and ps. (See Ju	ne particulate and 1 to correct a typo stification 3)
8.2.6.1.9	Section 2.0: Provide re-verified $P_{i\tau}$ values for the 2.2-13 of both ODCMs. (See Justification 1)	ne Beaver V	alley site in Table
8.2.6.1.10	Section 2.0: Correct the definition for the t_f valin Section 2.3.2.1 of both ODCMs. (See Justifi	ue in the co ication 1)	ow-meat pathway
8.2.6.1.11	Section 2.0: Provide re-verified R values for the 2.3-2 through 2.3-20 of both ODCMs. (See Ju	e Beaver Va stification 1	alley site in Tables
8.2.6.1.12	<u>Appendix B</u> : Change the particulate and iodine B of the BV-1 ODCM. (See Justification 3)	release frac	tions in Appendix
8.2.6.2 The	justification used for Change (6) to the ODCMs a	are as follow	ws:
8.2.6.2.1	A letter dated March 2, 1989 (from the NRC) w Light regarding acceptance of the Offsite Dose NRC acceptance of the BV-1 and BV-2 ODCM Evaluation Reports (TER No. EGG-PHY-8194 provided by the Idaho National Engineering Lab	was received Calculation Is was base and EGG- boratory.	d by Duquesne Manuals. The d on Technical PHY-8217)
	As stated in the letter, minor concerns are define In general, these concerns are considered typos impact any of the calculations currently being per However, one of these concerns is regarding the ODCM R values for the cow-meat, cow-milk are using the ODCM/NUREG-0133 methodology. other ODCM R values) were re-validated VIA (ATL-89-014. The results of this package show three aforementioned pathways were in error. So not involve the controlling receptor for gaseous receptor is VIA the Inhalation, Ground, and Ver pathways subject to error), <u>THEN</u> the changes accuracy or reliability of effluent dose calculation	eated in Sec or addition erformed fo e inability to nd goat-mil These R va Calculation ed that the <u>SINCE</u> the release (i.e getation par will not advo	ction 4 of the TER. s and in one way or dose contributions. o reproduce the k pathways when alues (along with all Package No. ERS- R values for the R values in error do a.; the controlling thways, not the versely impact the
8.2.6.2.2	As requested by DLC letters ND3NSM:3431, N ND1NSM:3652, Technical Specifications were plant implementing procedures. As part of this were identified in various sections of the ODCM anomalies identified during the verification effor	ND1NSM:3 required to effort, word 1. This revi t.	522, and be verified in all ding errors/typos ision corrects the

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8.2.6.2.3 As delineated in letter ND1SHP:776, dated F	February 12,	1988 (BVPS-1			
ODCM Table 2.2-2, Appendix B) a series of	apparent dis	crepancies were			
identified between ODCM Table 2.2-2 and si	milar tables	of the BVPS-2			
FSAR Evaluation showed that apparent cre	dit was oiver	n for continuous			
filtration of SI CRS releases which is invalid	at Unit 1 H	owever the			
and substian package on which the DVDS 2 E	AD ovposto	d release tables are			
taculation package on which the DVF 5-2 Fo	AR expecte	ation for Unit 1			
based, is correct (i.e., no credit was taken for	fourne min				
releases). Except for revising the ODCM, no	nurther corr	rective action is			
necessary because the particulates and iodine	s in the ODC	. M were not used			
for gaseous effluent alarm setpoint. Therefor	e, this chang	ge does not			
adversely impact the accuracy or reliability of	setpoint cal	culations.			
8.2.7 Change (7) of BV-1 and 2 ODCM (Issue 3), Effective Au	igust, 1995				
8.2.7.1 The combined ODCM contains the following change	ges:				
8 2 7 1 1 Prior to ISSUE 3 BV-1 and BV-2 had indivi	dual ODCM	's that were			
generically equal In an effort to simplify the	generically equal. In an effort to simplify the implementing documents, the				
ODCMs have been combined. This merger c	ODCMs have been combined. This merger of the individual ODCMs will				
maintain the level of radioactive effluent cont	maintain the level of radioactive effluent control required by 10 CFR				
20 1302 40 CER Part 190 10 CER 50 36a s	and Appendix	v I to 10 CFR Part			
50 Also this merger will not adversely impa	50 Also this merger will not adversely impact the accuracy or reliability of				
offluent dose or setucint colculations	50. Also, this merger will not adversely impact the accuracy of reliability of				
endent, dose, or setpoint calculations.					
8 2 7 1 2 Section 1.0: Revised Section 1.0 (Liquid Eff	luents) to she	ow compliance with			
$\frac{10 \text{ CFR } 20 \text{ Appendix B} (20, 1001 - 20, 2401)}{10 \text{ CFR } 20 \text{ Appendix B} (20, 1001 - 20, 2401)}$	Table 2 Co	1 2 EC's This			
includes the following: (1) Revising the alar	n setnoints f	for monitors [PM			
11 W 104 PM 11 W 116 and 2SGC PO100	1 (2) Unda	ting the PV 1			
TLW-104, KW-1LW-110, and 250C-KQ100	J. (2) Opua	to and dilution note			
momitor detection encies. (3) Opdating	discharge ra	te and dilution rate			
parameters for BV-1 and BV-2. (4) Adding	the alarm set	tpoints for monitors			
[RM-1KW-100, RM-1DA-100, 2SWS-RQ10	1, and 28W	S-RQ102].			
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8.2.7.1.3	Section 1.0: Revised Section 1.0 (Liquid Eff	luents) and !	Section 2.0
	(Gaseous Effluents) to merge the BV-1 alarm	setpoint ca	lculations with the
	BV-2 alarm setpoint calculations. For all pra	ctical purpo	ses, when Tables,
	Figures, and Equations were transferred to the	e combined	ODCM, the
	numbering was kept generically equal. The t	wo exceptio	ns to this are as
	follows: (1) If a table was contained in both	ODCMs, bu	ut each had data
	specific to BV-1 or BV-2, then an a or b was	added to th	e table. For
	example, Table 1.1-1 was previously included	l in the BV-	1 ODCM and the
	BV-2 ODCM. These tables are now number	ed 1.1-1a an	d 1.1-1b denoting
	BV-1 and BV-2 respectively. A cross referen	nce for ODC	M tables is
	provided in the Table Of Contents. (2) If an	equation wa	as contained in both
	ODCMs, but each had data specific to BV-1	or $BV-2$, the	en a (1) or (2) was
	added to the equation. For example, Equation	n I.I-I was	previously included
	in the B_{V-1} ODCM and the B_{V-2} ODCM. I	Inese equation	2 rospostively
	rate =	ded in the T	able Of Contents
	eress receiver for the environments is provi		
8.2.7.1.4	Section 3.0: Revised Section 3.0 (Radiologic	al Environn	nental Monitoring
	Program) to list the program requirements fro	om the Radio	ological Assessmen
	Branch Technical Position (Revision 1, 1979)		
8.2.7.1.5	Section 4.0: Revised Section 4.0 (Informatio	n Related T	o 40 CFR 190) to
	provide clarified reporting requirements for th	ne Special R	eport. The
	clarifications were taken from Generic Letter	89-01, Supp	olement No. 1
	(NUREG-1301).		
8.2.7.1.6	Appendix A: Revised Appendix A to transfer	the Batch I	Release dispersion
	parameters from Appendix A (Tables A-2 thr	ough A-5) te	o Section 2.3
	(Tables 2.3-35 through 2.3-38). This revision	was done f	or clarification. Fo
	example, all dispersion parameters are now in	cluded in on	e area of the
۰ <u>ـ</u>	ODCM.		
8.2.7.1.7	Appendix C: This is a new Appendix to the C	DCM. Pro	cedural details for
	the Radiological Effluent Technical Specificat	ions (RETS) were transferred
	from the Technical Specifications to Appendix	c C of the O	DCM per Generic
	Letter 89-01 and Generic Letter 89-01, Suppl	ement No. 1	I (NUREG 1301)
	This Appendix also includes selected Definition	ons and Tabl	es as delineated in
	the Technical Specifications (Section 1) and s	elected App	licability and
	Surveillance Requirement statements as deline	eated in the	Technical
	Specifications (Section 3/4). These were add	ed to Appen	dix C for reference
	purposes, even though they are currently desc	ribed in the	Technical
	specification.		
8.2.7.1.8	Appendix D: This is a new Appendix to the C	DCM. The	e bases for ODCM
	Controls were transferred from the Bases Sec	tion of the T	echnical
			cennear

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8.2.7.1.9	<u>Appendix E</u> : This is a new Appendix to the O Radioactive Effluent Release Report and the A Environmental Report reporting requirements the ODCM.	DCM. The annual Radi are listed ir	e Annual ological this appendix to this ODCM
0.2.7.1.10	revision when compared to the previous BV-1 Specifications. These are the only changes that bars. These differences are as follows:	and BV-2 at are identi	Technical fied by revision
8.2.7.1.10	First Difference - LLD Definition Clarifi (1) There was a sentence removed in the Definitions delineated in Appendix C Ta sentence stated: "In calculating the LLD by gamma ray spectrometry, the backgro contributions of other radionuclides norm (e.g., potassium in milk samples)." (2) T justification of NUREG-0472, Rev. 2 (i. removed the sentence from Tables 4.11- there are <u>no</u> other radionuclides normally However, there is applicability to environ to the existence of other radionuclides in sentence, therefore, will not be removed 1. (3) Removal of the sentence from Ap 4.11-2 does not adversely impact the acc or past effluent LLD calculations. This of radioactive effluent control required by I 190, 10 CFR 50.36a, and Appendix I to adversely impact the accuracy or reliabilit calculations. (4) This change brings OD 1 and 4.11-2 in generic agreement with N 0472) and industry standard.	cation is de e LLD Star bles 4.11-1) for a radic ound shall in nally presen Chis sentence e., this revis 1 and 4.11- y present in nmental LL environme from Appe opendix C, ' curacy or re change main 0 CFR 20. 10 CFR Pa ty of efflue OCM Apper NRC guidar	scribed as follows: dard Deviation and 4.11-2. This onuclide determined oclude the typical of in the samples was removed by sion to the NUREG 2). At BV-1 and 2, effluent samples. D calculations due ntal samples. This ndix C, Table 4.12- Tables 4.11-1 and liability of current ntains the level of 1302, 40 CFR Part rt 50, and does not nt, dose, or setpoint dix C, Tables 4.11- nce (i.e., NUREG-

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8.2.7.1.10.2	Second Difference - Change From Report as follows: (1) The freque Release Report was changed from change is justified by Federal Regis 57, No. 169, Monday, August 31, 50.36a(a)(2) states, in part. "Each Commission annually that specifies radionuclides released to unrestrict effluents during the previous 12 mo submission of the reports must be r This change maintains the level of r by 10 CFR 20.1302, 40 CFR Part 1 to 10 CFR Part 50, and does not ac reliability of effluent, dose, or setpor Third Difference - Implementation follows: (1) The definition for ME revised to agree with the definition definition for UNRESTRICTED At definition that was in the Technical to the ODCM. This modification v ODCM dose model for gaseous reli- modification involved adding the for release dose calculations, the UNRI any public road, railway, or waterw that is not occupied continuously by (3) The limits for liquid effluent co times 10 CFR 20 Appendix B (20.1 to 10 times 10 CFR 20 Appendix B 2 EC's. This limit will now be refer Concentration Limit (OEC). (4) Fe were made to implement the New 1 the utility adopted the RETS (1/1/8 shifted from the MPC concept to th concept. The Dose Rate concept is gaseous effluent release rate, and w MPC or EC concept. (5) Changing effluents accommodates needed ope implementation of the New 10 CFR information, the general intent of th doses to members of the public not is more restrictive than the 500 mre and that fuel cycle licensees also con	Semi-Annual Renew of the Radio Semi-Annual to ter, Rules And H (1992), where as; licensee shall su the quantity of the ed areas in liquid on the of operation o longer than 12 adioactive efflue 90, 10 CFR 50 (versely impact to int calculations.) Of New 10 CFR MBER(S) OF The in 10 CFR 20, 10 REA was modified Specifications provide the office asses is not affect llowing sentence ESTRICTED All ay adjacent to or MEMBER(S) meentration were - 20, 601), Table (20, 1001 - 20, 20 red to as the OE of gaseous efflue 0 CFR 20. As ju 4), compliance to the preferred m ill continue to be sto the OEC limit crational flexibili 20 requirement e New Part 20 is exceed 100 mrei ms per year limit mply with 40 CFR	27 of 84 eport To Annual pactive Effluent Annual. This Regulations (Vol. ; 10 CFR Part bmit a report to the each of the principal d and in gaseous onthe time between 2 months" (2) ent control required 36a, and Appendix I the accuracy or 2 20 is described as THE PUBLIC was 003. (2) The ied from the prior to transferring ensure that the cted. The e: "For gaseous REA should exclude r crossing the site OF THE PUBLIC". e changed from 1 e II, Col. 2 MPC's 2401), Table 2, Col. DCM Effluent ents, no changes ustification, when o 10 CFR 20 Area Dose Rate ethod of controlling e used in-lieu of the hit for liquid ty to facilitate s. (6) For s that radiation ms per year, which t in the Old Part 20, FR 190. The New

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20. (7) The basic requirements for RETS (i.e.; ODCM Appendix C Controls) are stated in 10 CFR 50.36a. These requirements indicate that compliance with the RETS will keep average annual releases of radioactive material in effluents to small percentages of the limits specified in the 10 CFR 20.106 (10 CFR 20.1302). These requirements also indicate that operational flexibility is allowed (with considerations for public health and safety) which may temporarily result in releases higher than such small percentages, but still within the MPC limits specified in the 10 CFR 20.106. The MPC's relate to an annual dose of 500 mrem. Also, 10 CFR 50.36a indicates that when using operational flexibility, best efforts shall be exerted to keep levels of radioactive materials in effluents to ALARA as set forth in 10 CFR 50 Appendix I. (8) As stated in the Introduction to Appendix B of the New 10 CFR 20, the liquid EC's are based on an annual dose of 50 mrem. Since a release concentration corresponding to a limiting dose rate of 500 mrem/year has been acceptable as a RETS limit for liquid effluents, it should not be necessary to reduce this limit by a factor of ten. (9) BV-1 and BV-2 has demonstrated that the use of the MPC's associated with the 10 CFR 20.106 has resulted in calculated maximum individual doses to a member of the public that are small percentages of the limits of 10 CFR 50 Appendix I. Therefore, the use of the OEC's, which correspond to an annual dose of 500 mrem (i.e.; 10 times the 10 CFR 20 EC's) should not have a negative impact on the ability to continue to operate within the limits of 10 CFR 50 Appendix I, and 40 CFR 190. (10) Operational flexibility is also necessary in establishing a basis for effluent monitor setpoint calculations. As previously discussed, the EC's stated in 10 CFR 20 relate to a dose of 50 mrem in a year. This is too restrictive to base effluent monitor setpoint calculations. For many liquid effluent release situations, the monitor background is high, which could result in a monitor setpoint that is approximately equal to the monitor background. (11) In summary, to accommodate operational flexibility needed for effluent releases, the limits associated with the liquid release concentration (i.e.; the OEC) are based on 10 times the EC's stated in the 10 CFR 20. The multiplier of 10 is used because the annual dose of 500 mrem (10 CFR 20 MPC bases) is a factor of 10 higher than the annual dose of 50 mrem (10 CFR 20 EC bases). Compliance with the 100 mrem dose limit of the 10 CFR 20.1302 will be demonstrated by operating within the dose limits of 10 CFR 50 Appendix I, and 40 CFR 190 (which are also ODCM Controls for liquid and gaseous effluents). Implementation of the 10 CFR 20 for liquid effluents maintains the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR Part 50, and does not adversely impact the accuracy or reliability of effluent, dose, or setpoint calculations.

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8.2.7.2 In s fulf imp rad for of t	summary, Per Generic Letter 89-01, the transfer of fills the goal of the USNRC Policy Statement for provements. It is not the USNRC's (or DLC's) in ioactive effluent control. Rather, the intent is to RETS (as delineated in Technical Specification 6 the procedural details of the RETS to the ODCM	of RETS pro Technical S tent to redu provide pro (.8.6) and al	ocedural details pecification ce the level of grammatic controls low for relocation
8.2.8 <u>Change (</u>	8) of BV-1 and 2 ODCM (Issue 3, Rev 1), Effect	ive October	r <u>, 1995</u>
8.2.8.1 A d	lescription of the changes implemented with this	revision are	as follows:
8.2.8.1.1	Index: Editorial changes were made for clarity	y. (See just	ification 1)
8.2.8.1.2	<u>Section 1.0</u> : Revised Nb-95 and Nb-97 dose f changing the niobium bioaccumulation factor.	actors in Ta (see justific	able 1.3-1 due to cation 2)
8.2.8.1.3	<u>Appendix A</u> : A change was made to Table 1.1 proceed the table number. (See justification 1)	so that the	letter A would
8.2.8.1.4	<u>Appendix B</u> : A descriptive paragraph was add Appendix. Also, changes were made to the tal proceed the table numbers. (See justification 1	ed at the fro bles so that l)	ont of this the letter B would
8.2.8.1.5	<u>Appendix C</u> : Descriptive paragraphs were add (See justification 1). Removed the process flo surveillance requirements for gaseous effluent RQ301, 2RMQ-RQ303 and 2HVL-RQ112] fr (See justification 3). Added alternate system e devices for the three gaseous effluent pathway (See justification 4). Revised Surveillance Rec 4.11.1.1.4 and notes e and g of Table 4.11-1 to sampling requirements (See justification 5).	ed at the fro w rate oper radiation m om Tables 3 ffluent flow s to Tables juirements 4 o clarify Tur	ont of the Appendix ability and onitors [2RMQ- 3.3-13 and 4.3-13 rate measuring 3.3-13 and 4.3-13 4.11.1.1.3 and bine Building sump
8.2.8.1.6	Appendix D: Descriptive paragraphs were add Appendix. (See justification 1)	ed at the fro	ont of the
8.2.8.1.7	<u>Appendix E</u> : Descriptive paragraphs were adde (See justification 1)	ed at the fro	nt of the Appendix.
8.2.8.1.8	<u>Appendix F</u> : This is a new Appendix to the ODCM. It contains plant procedure references for Radiological Effluent Technical Specification (RETS) that were transferred from the Technical Specification Procedure Matrix. (See justification 1)		
8.2.8.2 The	justification used for change (8) to the ODCM a	re as follow	s:

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8.2.8.2.1	These changes are considered editorial in nature. Therefore, these editorial changes will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR 50. Also the editorial changes will not adversely impact the accuracy or reliability of effluent dose or setpoint calculation.		
8.2.8.2.2	This change resulted from revising the bioaccur niobium from the value posted in Table A-1 of I Revision 1, 1977 (30,000 pCi/kg per pCi/l). Sin (as documented and justified in Appendix A to ERS-ATL-83-027) merely removes the conserv organism uptake, then the change will maintain effluent control required by 10 CFR 20.1302, 4 50.36a, and Appendix I to 10 CFR 50. Also, re not adversely impact the accuracy or reliability o calculation.	nulation fac Regulatory nce this cha Calculation ratism asso the level of 0 CFR Part moving the of effluent	ctor (BF) for Guide 1.109, ange in niobium BF Package No. ciated with f radioactive to 190, 10 CFR e conservatism will dose or setpoint
8.2.8.2.3	This change removes the process flow rate oper requirements for BV-2 Gaseous Effluent Radiat RQ301, 2RMQ-RQ303 and 2HVL-RQ112] fro and 4.3-13. These items were removed from th provided in Calculation Package No. ERS-ATL and a no significant hazards evaluation were pre submitted it to the NRC via TSCR No. 2A-61 in withdrawn in 1993 in an effort to alleviate any ff approval of TSCR No. 1A-175/2A-37 (Generic implementation). Removal of these requirement maintain the level of radioactive effluent control 20.1302, 40 CFR Part 190, 10 CFR 50.36a and Also removal of these items will not adversely in reliability of effluent dose or setpoint calculation summary of the justification. (1) BVPS-1 and I and will continue to use design (maximum) syste & Dose Rate Calculations, rather than those flow normal plant operation. (2) BVPS-2 UFSAR S the source term for these three pathways are not are not included in UFSAR Tables 11.3-1 throug expected and design releases for each potentially The DLC commitment to Regulatory Guide 1.97 the BVPS-2 UFSAR) is not affected. This RG a used during and after postulated accident condit flow rate instruments were not used in any accid used to assess plant conditions during and follow DLC commitment to Regulatory Guide 1.21, Re BVPS-2 UFSAR) is not affected. RG 1.21, Sec Monitoring) states in part: "All major and potent	ability and ion Monito m Appendi e ODCM b -90-021. A pared and n 1992. Ho urther delay Letter 89- ts from the required b Appendix mpact the a n. The follo 3VPS-2 is em flow rat w rates obs ection 11.3 t significant gh 11.3-4 t v radioactiv 7, Rev. 2 (S applies to in ions. Thes ent analysi ving an acc w. 1 (Section tion C.2 (L ttially signifi	surveillance ors [2RMQ- x C Tables 3.3-13 by justification A safety analysis approved prior to owever, it was ys associated with 01 ODCM will y 10 CFR I to 10 CFR 50. ccuracy or owing is a currently using, tes in ODCM Dose erved during 0.3 indicates that these pathways hat list the re pathway. (3) Section 1.8-1 of nstrumentation e three process s, nor are they ident. (4) The on 1.8-1 of the location of ficant paths for

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release of radioactive material during normal reactor operation, including anticipated operational occurrences, should be monitored. Measurements of effluent volume, rates of release, and specific radionuclides should be made insofar as practical ... " As previously stated, the three process flow rate instruments are located on effluent pathways that do not have a significant source term. (5) BVPS-2 UFSAR Sections 9.4.13 and 9.4.16 indicate that the building ventilation system for these three pathways are non-safety related and are not required to perform any safety-related function. (6) There is no effect to the Noble Gas Monitors located on these three pathways. The Noble Gas Monitors are still capable of performing their intended functions as described in BVPS-2 UFSAR Section 11.5.2.4.

8.2.8.2.4 This change adds alternate system effluent flowrate measuring devices for the three BV-1 gaseous effluent pathways to Appendix C Tables 3.3-13 and 4.3-13. A 10 CFR 50.59 safety evaluation has concluded that no unreviewed safety question is involved by adding the alternate measuring devices to Appendix C Tables 3.3-13 and 4.3-13. This conclusion is based on the following: (1) There is no increase in the probability or consequences of accidents or malfunctions of equipment important to safety. (2) There is no creation of a possibility for an accident or malfunction of a different type than any evaluated previously. (3) There is no reduction in the margin of safety. (4) Also, since this change merely adds alternate measuring devices that meet the same surveillance requirements of the primary channel, then the change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR 50. Also, addition of the alternate flow rate measuring devices will not adversely impact the accuracy or reliability of effluent dose or setpoint calculations.

8.2.8.2.5

This change to the ODCM clarifies Turbine Building sump sampling requirements and clarifies effluent related actions associated with detection of radioactivity in the secondary system. These clarifications are documented and justified in Calculation Package No. ERS-ATL-95-006. Also, since these clarifications were shown to meet the intent of NUREG-1301 (superseding NUREG-0472) and the BVPS-1 and 2 UFSAR's, then the clarification will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a and Appendix I to 10 CFR 50. Also, the clarifications will not adversely impact the accuracy or reliability of effluent dose or setpoint calculation. Also, a 10 CFR 50.59 safety evaluation has concluded that no unreviewed safety question is involved by clarifying these actions. This conclusion is based on the following: (1) There is no increase in the probability or consequences of accidents or malfunctions of equipment important to safety. (2) There is no creation of a possibility for an accident or malfunction of a different type than any evaluated previously. (3) There is no reduction in the margin of safety.

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8.2.9 <u>Change (</u>	9) of BV-1 and 2 ODCM (Issue 3, Rev 2), Effe	ctive May 19	<u>997</u>
8.2.9.1 A d	lescription of the changes implemented with this	s revision are	as follows:
8.2.9.1.1	Index: Editorial changes were made for clar	ity. (See Jus	tification 1)
8.2.9.1.2	Section 1.0: Clarifying statements were adde show that the recirculation times listed are ba rates. Figure 1.4-3 was added to show BV-1 Points. (See Justification 1)	d to Tables 1 ased on histo 1 and 2 liquid	.2-1a and 1.2-1b to rical recirculation I Effluent Release
8.2.9.1.3	<u>Section 3.0</u> : Removed the option to perform at the site boundary in a sector with the high	broad leaf ve est D/Q. (Se	egetation sampling e Justification 2)
8.2.9.1.4	<u>Appendix C</u> : Added plant specific Mark Nun 3.3-13 and 4.3-13 (See Justification 1). Com Surveillance Requirement 4.11.4.1.1 (See Just statements from NUREG-1301 and the Radie Technical Position to Tables 3.12-2 and 4.12 Removed the option to perform broad leaf ver boundary in a sector with the highest D/Q (Sector 2)	abers to Table rected typogr stification 1) ological Asse -1 (See Justi regetation sam ee Justification	es 3.3-12, 4.3-12, raphical errors on Added clarifying essment Branch fication 1). apling at the site on 2).
8.2.9.1.5	<u>Appendix E</u> : Corrected typographical error o Justification 1)	n Table 6.9-	1. (See
8.2.9.1.6	<u>Appendix F</u> : Added procedure details to Tab Justification 1)	les 11, 12 an	d 13. (See
8.2.9.2 The	justification used for Change (9) to the ODCM	are as follow	ws:
8.2.9.2.1	These changes are considered editorial in national typographical errors or add editorial details for documents. Therefore, these changes will mateffluent control required by 10 CFR 20.1302, 50.36a and Appendix I to 10 CFR 50. Also, adversely impact the accuracy or reliability of calculations.	ure. The cha om previous intain the lev 40 CFR Par the editorial `effluent dose	nges either correct ly approved station vel of radioactive t 190, 10 CFR changes will not e or setpoint

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8.2.9.2.2	This change removes the option to perform broth the site boundary (in a sector with the highest li- census. Per NUREG-1301 and the Radiologic this option does not apply to plants with elevat have elevated releases, the option should not be garden census showed that the option was never Since this change removes an option that should change will maintain the level of radioactive eff CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36 50. Also, removal of the option will not adverse reliability of effluent dose or setpoint calculation	bad leaf veg D/Q) in lieu al Branch T ed releases e exercised er exercised d not be ex fluent contr ba and App sely impact ns.	getation sampling at a of the garden Technical Position, . Since BV-1 and 2 . A review of past 1 at BV-1 and 2. tercised, then the ol required by 10 endix I to 10 CFR the accuracy or
8.2.10 <u>Change (1</u>	0) of BV-1 and 2 ODCM (Issue 3, Rev 3), Effec	tive June 19	997
8.2.10.1 A de	escription of the changes implemented with this re-	evision are	as follows:
8.2.10.1.1	Section 2.0: A release point for the BV-2 Turb (for editorial purposes) to Figure 2.4-2.	ine Building	g Vent was added
8.2.10.2 The	justification used for Change (10) to the ODCM	is as follow	VS:
8.2.10.2.1	This change is considered editorial in nature. This change is considered editorial in nature. The item that was previously located on BV-2 Technology 2. Since BV-2 Technical Specification Amended then the gaseous release point for the BV-2 Turnsferred to the ODCM. Therefore, since this editorial, the change will maintain the level of required by 10 CFR 20.1302, 40 CFR Part 190 Appendix I to 10 CFR 50. Also, the editorial compact the accuracy or reliability of effluent does a statement of the accuracy or reliability of effluent does a statement of the accuracy of the statement of the statement of the accuracy of the statement of the statement of the statement of the accuracy of the statement of	The change nical Speci nent 83 rer rbine Build s change is adioactive of , 10 CFR 5 hange will se or setpoi	adds an equivalent fication Figure 5.1- noved this figure, ing Vent needed considered effluent control 0.36a and not adversely nt calculations.
8.2.11 <u>Change (1</u>	1) of BV-1 and 2 ODCM (Issue 3, Rev 4), Effect	ive March	1998
8.2.11.1 A de	escription of the changes implemented with this re	vision are a	as follows:
8.2.11.1.1	Index: Editorial changes were made for clarity.		
8.2.11.1.2	Section 3.0: The distances for the environmental were revised to show a more accurate measurer Unit 1 Containment Building. The actual sampler remain unchanged. Also, the 4 individual quadre locations were consolidated into 1 map. This is Condition Report CR 980353.	l monitorir nent from t le locations ant maps s a Correcti	ng sample points the center of the and descriptions howing TLD ve Action to

Title: ODCM:	Index, Matrix 8.2.11.1.3 8.2.11.1.4	and History of ODCM Changes <u>Section 4.0</u> : Added clarifying statements as to l effluents for MEMBERS OF THE PUBLIC co site boundary are derived and reported. This is Condition Report CR 971578. <u>Appendix C</u> : Added statements to Action 23 of batch liquid releases may also be initiated with the resuming the release. This is a recommendation Assessment. A note was also added to this table signatures on the discharge permit satisfy the re-	Unit: 1/2 Revision: 8 how doses nducting a a Correct Table 3.3 the same A n from the le to clarify	Level Of Use: General Skill Reference Page Number: 34 of 84 due to radioactive activities inside the ive Action to -12 to clarify that Action needed for 1997 RETS Self- y that independent
ODCM:	Index, Matrix 8.2.11.1.3 8.2.11.1.4	and History of ODCM Changes <u>Section 4.0</u> : Added clarifying statements as to 1 effluents for MEMBERS OF THE PUBLIC co site boundary are derived and reported. This is Condition Report CR 971578. <u>Appendix C</u> : Added statements to Action 23 of batch liquid releases may also be initiated with the resuming the release. This is a recommendation Assessment. A note was also added to this table signatures on the discharge permit satisfy the re-	Arrow doses nducting a a Correct Table 3.3 the same A n from the le to clarify	Adve to radioactive activities inside the ive Action to -12 to clarify that Action needed for 1997 RETS Self- y that independent
	8.2.11.1.3 8.2.11.1.4	<u>Section 4.0</u> : Added clarifying statements as to l effluents for MEMBERS OF THE PUBLIC co site boundary are derived and reported. This is Condition Report CR 971578. <u>Appendix C</u> : Added statements to Action 23 of batch liquid releases may also be initiated with resuming the release. This is a recommendation Assessment. A note was also added to this tabl signatures on the discharge permit satisfy the re-	8 how doses nducting a a Correct Table 3.3 the same A n from the le to clarify	34 of 84 due to radioactive activities inside the ive Action to -12 to clarify that Action needed for 1997 RETS Self- y that independent
·	8.2.11.1.3	Section 4.0: Added clarifying statements as to leffluents for MEMBERS OF THE PUBLIC co site boundary are derived and reported. This is Condition Report CR 971578. Appendix C: Added statements to Action 23 of batch liquid releases may also be initiated with the resuming the release. This is a recommendation Assessment. A note was also added to this table signatures on the discharge permit satisfy the re-	how doses nducting a a Correct Table 3.3 the same A n from the le to clarify	-12 to clarify that Action needed for 1997 RETS Self- y that independent
	8.2.11.1.4	<u>Appendix C</u> : Added statements to Action 23 of batch liquid releases may also be initiated with resuming the release. This is a recommendation Assessment. A note was also added to this tabl signatures on the discharge permit satisfy the re	Table 3.3 the same A n from the le to clarify	-12 to clarify that Action needed for 1997 RETS Self- y that independent
		technically qualified members of the Facility Starelease rate calculation" Added Action 29 to 3.3-13. This addition ensures consistency with gaseous effluent pathway Actions for Noble Ga Added plant specific Mark Numbers for primarinstrumentation to Tables 3.3-13 and 4.3-13 as Activity Monitors, [RM-1VS-109 Channel 5] w [RM-1VS-101B] and [RM-1VIS-110 Channel to [RM-1VS-107B]. [RM-1GW-109 Channel 3] alternate to [RM-1GW-108B] at this time, beca auto-isolation of gaseous waste decay tank rele (2) For Particulate Activity Monitors, [RM-1VS-101A], [RM-1VS-an alternate to [RM-VS-1107A], and [RM-1GW-as an alternate to RM-1GW-108A.	equirement aff indepen RM-1GW the other.' is Monitor y and alter follows: (vas added a 5] was added 5] was added 5] was not use it does ase upon u 'S-109 Cha 1110 Char W-109 Cha	Iter Two Idently verify the 7-108B on Table 7 continuous inoperability. nate (1) For Noble Gas as an alternate to ded as an alternate added as an s not perform on ipper activity alarm. annel 1] was added as annel 1] was added
	8.2.11.1.5	<u>Appendix E</u> : Corrected typographical errors on	Table E:6	.9-1
	8.2.11.1.6	<u>Appendix F</u> : Updated the procedure details for instrumentation included in Appendix C Tables the amount of detail contained in reference to th so that the position of the surveillance on the lo having a need to change the Tables in this Appen Action to Condition Report CR 980129.	primary an 3.3-13 and the Operation gs can be operation of the operation of the operation of the operation of the operation of the operation of the operation of the operation of the operation of the operation of the operation of the operation of the operation of the operation of the operation of the operation of the operation o	nd alternate 1 4.3-13. Reduced ng Manual L-5 logs changed without s is a Corrective
8.2	2.11.2 The	justification used for Change (11) to the ODCM	is as follov	ws:
	8.2.11.2.1	These changes are considered editorial in nature typographical errors or add editorial details from documents. Therefore, these changes will main effluent control required by 10 CFR 20.1302, 40 50.36a and Appendix I to 10 CFR 50. Also, the adversely impact the accuracy or reliability of ef- calculations.	 The cha n previous tain the lev 0 CFR Par e editorial fluent dose 	nges either correct ly approved station vel of radioactive t 190, 10 CFR changes will not e or alarm setpoint

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8.2.12 <u>Change (1</u>	2) of BV-1 and 2 ODCM (Issue 3, Rev 5), Effe	ctive Nove	mber 1998
8.2.12.1 A d	escription of the changes implemented with this	revision are	e as follows.
8.2.12.1.1	Index: Editorial changes were made for clarit	xy. (See Jus	tification 1.)
8.2.12.1.2	<u>Section 1.0</u> : Added clarification for calculation of radionuclide concentration when the Post Dose Correction Factor is ≥ 1 . (See Justification 1).		
8.2.12.1.3	<u>Section 3.0</u> : Added an additional site location surface water sample. Added additional meth compositing this sample. (See Justification 2.	for the ups od after col)	tream environmental lecting and
8.2.12.1.4	<u>Appendix C</u> : Revised the definitions for MEM UNRESTRICTED AREA to ensure compliar Justification 1.) Added a definition for MEM ensure compliance with 40 CFR 190.02(k). (plant specific Mark Numbers for primary and Table 3.3-13 that were inadvertently omitted ODCM. (See Justification 1.) Added clarific where and when H-3 samples of Waste Gas S obtained. This is a Corrective Action to Cond Justification 1.) Added clarification to note "a appropriate ventilation release path. This is a 981490. (See Justification 1.). Corrected an 3.12-1 to ensure that 2 TLD's are used for det (See Justification 1.) Incorporated the approp- that are described above for Section 3.0. (See	IBER(S) OF ace with 10 BER(S) OF See Justifica alternate ins from change ation to Tab torage Tank lition Repor e" of Table 4 Corrective obvious om cermination priate chang e Justificatio	F THE PUBLIC and CFR 20.1003. (See THE PUBLIC to ation 1.) Added strumentation to e (11) to the ole 4.11-2 as to cs are to be rt CR 981489. (See 4.11-2 as to the Action to CR ission on Table of Direct Radiation. res to Table 3.12-1 on 2.)
8.2.12.1.5	<u>Appendix F</u> : Added procedure details from th This is a Corrective Action to Condition Repo Justification 1.)	e Chemistry ort CR 9814	Manual to Table 6. 188. (See
8.2.12.2 The	justifications used for Change (12) to the ODC	M are as fol	lows:
8.2.12.2.1	These changes are considered editorial in nature typographical errors or add editorial details fre documents. Therefore, these changes will ma effluent control required by 10 CFR 20.1302, 50.36a, and Appendix I to 10 CFR 50. Also, adversely impact the accuracy or reliability of calculations.	re. The cha om previous intain the le 40 CFR Par the editorial effluent dos	anges either correct sly approved station vel of radioactive rt 190, 10 CFR l changes will not se or alarm setpoint

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8.2.12.2.2	These changes involve the upstream environ	mental surfac	e water sample
	method and sample site. Since these change	s were showr	n to meet the intent
	of NUREG-1301, and BVPS-1 and 2 UFSA	R's, then the	change will maintain
	the level of radioactive effluent control requi	red by 10 CF	R 20.1302, 40 CFR
	Part 190, 10 CFR 50.36a and Appendix I to	10 CFR 50.	Also, the change
	will not adversely impact the accuracy or reli	ability of effl	uent dose or alarm
	setpoint calculations. Also, a 10 CFR 10.50	safety evaluated by adding	an additional sample
	site and sample method. This evaluation is h	a by adding ased on the f	ollowing (1)
	There is no increase in the probability or con	sequences of	accidents or
	malfunctions of equipment important to safe	(2) There	e is no creation of a
	possibility for an accident or malfunction of a	different typ	be than any
	evaluated previously. (3) There is no reduct	ion in the ma	argin of safety.
8.2.13 <u>Change (1</u>	3) of BV-1 and 2 ODCM (Issue 3, Rev 6), Eff	ective May 1	999
8.2.13.1 A d	escription of the changes implemented with this	revision are	as follows:
8.2.13.1.1	Index: Editorial changes were made for clar	ty.	·
8.2.13.1.2	Section 3.0: Updated figure number and table redundant upstream environmental surface w	e reference.	Removed a glocation.
8.2.13.1.3	Appendix C: Made editorial changes for clari	ty. Added d	efinitions for
	SHUTDOWN and STARTUP. Changed def	inition for O	DCM to ensure
	agreement with definition provided in Unit 1/	2 Technical	Specification
	Amendments 220/97. Changed designations	for primary a	and alternate
	instruments on Tables 3.3-12, 4.3-12, 3.3-13	and 4.3-13 f	rom "P" and "A" to
	"Pri" and "Alt". Clarified use of the Flow Ra	te Measurem $\frac{12}{2}$ and $\frac{4}{2}$	12 to show that
	the Unit 1/2 combined instrument [FT-1CW-	101-11 is the	primary and both
	of the individual Unit 1 and Unit 2 instrumen	ts [FT-1CW-	1011 and I2CWS-
	FT101] are the alternates. Updated Actions	24, 25 and 26	5 of Table 3.3-12 to
	describe use of comparable alternate monitor	ing channels	when the primary
	channels are INOPERABLE. Clarified Table	3 3-13 Actio	on 28 applicability
	for Unit 2 gaseous effluent monitors. Clarifie	d Table 3.3-	13 Action 30 to
	show that applicability is for batch purges of	the reactor co	ontainments.
	Unanged reference of Special Report complia Specification 6.0 2f to 10 CEP 20 2202 and 1	Ince requirem	ent from Technical
	Unit 1/2 Technical Specification Amendment	s 220/07 Cl	as permitted by
	Table 4 11-2 regarding sampling and surveill	ances frequen	cies Clarified
	Controls 3.12.1 and 3.12.2 to ensure compliance	ewithNURE	G-1301.
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Re	aver Valley Power Station	Procedure N	umber:
			1/2-ODC-1.01
litle:		1/2	General Skill Referen
ODCM Index N	latrix and History of ODCM Changes	Revision:	Page Number:
ODCM. muex, w	lating and History of ODCM Changes	8	· 37 of 84
8 2 1 2 1	Annondix E: Made aditorial changes for	alarity Change	l reference of
0.2.13.	A <u>Appendix E</u> . Made editorial changes for Special Penert compliance requirement f	from Technical S	nonification 6.0.2f
	to 10 CEP 20 2202 and 10 CEP 50 4 as	normitted by Un	it 1/2 Technical
	Specification Amondments 220/07 Cha	permitted by On	ato of oppuol DEMD
	roport from May 1 to May 15 as pormitt	ngeu subinitial u	ale of allitual KEIVIP
	Specification Amendments 220/07 Cha	nged column bea	ding in Table
	$E_{1} = 60.1$ to onsure consistency with NUE	EC 1201	unig in Table
	E. 0.9-1 to ensure consistency with NOP	EG-1301.	
8.2.13.2	The justification used for change (13) to the O	DCM is as follow	WS:
8.2.13.2	1 All changes are considered editorial in na	ature. The chang	tes either clarify the
	intent of the original specification or add	equivalent items	form the standard
	guidance document (NUREG-1301) or r	ecent Technical	Specification
	Amendments. Therefore, since these cha	anges are conside	ered editorial, the
	changes will maintain the level of radioad	ctive effluent con	trol required by 10
	CFR 20.1302, 40 CFR Part 190, 10 CFR	50.36a and App	pendix I to 10 CFR
· .	50. Also, the editorial changes will not a	dversely impact	theaccuracyor
	reliability of effluent dose or setpoint calcu	lations.	-
8.2.14 <u>Char</u>	ge (14) of BV-1 and 2 ODCM (Rev 14), Effect	ive March 2000	
8 2 1 4 1	Prior to this ODCM change the change number	ers did not match	the Issue and
,	Revision numbers For example the last imple	mented ODCM	change was (13) but
	carried an Issue 3, Revision 6 designation. The	erefore, as of this	ODCM change
· ·	(14), consecutive Revision numbers will begin	with Revision 14	
8.2.14.2	A description of the changes implemented with	this revision are	as follows:
8.2.14.2	.1 Index: Editorial changes were made for c	clarity Reference	es to condition
	reports UK 982097, UK 992652 and CR	993021 were ad	aea.
8 2 1 4 2	2 Appendix C: Editorial changes were mad	le for clarity Co	rrected a
5.2.11.2	typographical error on Table 3 3-12 in re	eards to FT-CW	-101-1 Changed
	the grab sampling requirement from 8 ho	urs to 12 houre f	or Table 3 3-12
	Action 24 (NI IREG-1301 Table 3 3-12	Action 36 and 3	7 allow this
	change) Enhanced the Channel Function	al Test requirem	r anow this ents on Table 4.3.
	$12 \text{ from } O(6) \text{ to } O(1) \text{ for } RM_1DA_100$	Corrective Activ	on to Condition
	Report CR 993021) Add clarification to	Table 3 3-13 an	$d 4 3_{-13}$ to show
	the plant specific Mark Numbers for the	nrimary and alter	nate BV-1 Sample
	Flow Rate Measuring Devices Correcte	d a typographica	l error on Table
	3 3-13 Action 27 Senarated Action 28 c	of Table 3 3-13 in	nto individual
	Action 28 requirements for System Efflue	ent Flow Rate M	essuring
	Devices/Process Flowrate Monitors and	individual Action	28 requirements
	for Sample Flow Rate Measuring Devices	s/Sampla Flower	te Monitors
	Added clarification to Table 2.2.12 to sh	ow that Action ?	Q and Action 22 and
	applicable for continuous releases Adda	d an alternato mo	that in lieu of arch
	applicable for communuous releases. Adde	u an ancinate me	anou in neu or grab

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Beave	r Valley Power Station	Procedure N	$\frac{1}{2} ODC 1 01$
Title		I Init:	1/2-ODC-1.01
THE.	i	1/2	General Skill Reference
ODCM [.] Index Matrix	x and History of ODCM Changes	Revision:	Page Number:
	A and Thistory of ODEM Changes	8	<u>38 of 84</u>
	sample collection (ie., local monitor reading communication is lost to the Control Room) 3.3-13 Action 29. Changed the grab sampli 12 hours for Table 3.3-13 Action 29 and Ac 3.3-013, Action 47 allows this change). Co Table 4.11-1 in regards to liquid composite notation.	s can be obta to show con ng requireme tion 32 (NUI rrected typog analysis frequ	ined when npliance to Table nt from 8 hours to REG-1301, Table raphical errors on hency and table
8.2.14.2.3	Appendix F: Made editorial changes for clar details for primary and alternate instrumenta Tables 3.3-13 and 4.3-13. Added appropria Logs (ie., HPM Appendix 1) when these log Appendix C Surveillances and Actions (Corr Report CR 992652).	ity. Updated tion included te references s are used sa rective Action	the procedure in Appendix C to the HP Shift tisfy ODCM to Condition
8.2.14.3 The	e justification used for change (14) to the ODC	M is as follov	VS:
8.2.14.3.1	Most of these changes are considered editor screened for 10CFR50.59 applicability. In s UFSAR's are not impacted, because the cha the original specification, add plant specific I items from the standard guidance document these changes will maintain the level of radic by 10CFR20.1302, 40CFR Part 190, 10 CFI 10CFR50. Also, these changes will not adver reliability of effluent dose or alarm setpoint of	ial in nature. ummary, the nges either cl Mark Numbe (NUREG-13 pactive effluer R50.36a, and ersely impact calculations.	All changes were BVPS-1 and 2 arify the intent of rs, or add equivalent 01). Therefore, nt control required Appendix I to the accuracy or
8.2.15 <u>Change (1</u>	5) of BV-1 and 2 ODCM (Rev 15), Effective .	<u>August 2000</u>	
8.2.15.1 A d	escription of the changes implemented with this	s revision are	as follows:
8.2.15.1.1	Index: Editorial changes were made for clari Report CR 001682 was added. Reference to was added.	ty. Reference NRC unresc	e to Condition blved Item 83-30-05
8.2.15.1.2	<u>Appendix C</u> : Editorial changes were made for of Table 3.3-13 into Action 28A and 28B to Action 28A requirements for system/process Action 28B requirements for sampler flow ra alternate method in lieu of 4 hour flow rate e design values for system/process flow rate) t 3.3-13 Action 28A when the system/process Annotated Actions 30 of Table 3.3-13 into A differentiation between Action 30A requirem containment purges and Action 30B requirem	or clarity. An show differen flow rate me te measurem stimations (ic o show comp flow rate mo action 30A an ents for BV- nents for BV-	notated Actions 28 ntiation between asurement and ent. Added an c; assume ODCM liance with Table nitor is inoperable. d 30B to show l reactor -2 reactor

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Beave	er Vall	ev Power Station	Procedure Nur	$\frac{1}{2} ODC + 01$
Title:			Unit:	Level Of Use:
ODCM: Index, Matri	x and His	tory of ODCM Changes	1/2 Revision: 8	General Skill Reference Page Number: 39 of 84
8.2.15.2 Th	e justifica	tion used for change (15) to the ODC	M is as follow	s:
8.2.15.2.1	Some were s BVPS origina effluer and Aj accura	of these changes are considered edito creened for 10CFR50.59 applicability -1 and 2 UFSAR's. Since the editoria al specification, then these changes wi at control required by 10CFR20.1302, ppendix I to 10CFR50. Also, these cl cy or reliability of effluent dose or ala	rial in nature. and determine al changes clar ll maintain the 40CFR Part 1 hanges will not rm setpoint ca	These changes ed not to impact the ify the intent of the level of radioactive 190, 10CFR50.36a, t impact the lculation.
8.2.15.2.2	The ch hour ff pathw impact these of Dose J Dose J Dose J System gaseou resport Also th ODCM surveil pathw radioa 10CFH impact calcula	hange to allow use of design (maximus low rate estimations (for five of the ei- ays) was screened for 10CFR50.59 ap the BVPS-1 and 2 UFSAR's. The 4 effluent release pathways have never b Rate Calculations. The method for us and Dose Rate Calculations remains u VPS-2 is currently using, and will con- a flow rates in ODCM Dose and Dose as effluent release pathways. This is n use to NRC Unresolved Item 50-334/8 his change is considered similar and w A change (8) that removed all of the p lance requirements for the other three ays. Based on the above, these chang ctive effluent control required by 10C R50.36a, and Appendix I to 10CFR50 the accuracy or reliability of effluent atton.	m) system flow ght gaseous ef pplicability and hour flow rate been used in Ol e of process flow nchanged. For tinue to use de Rate Calculat eccessary to en 33-30-05 is not ithin the justifit rocess flow rate gaseous efflue es will maintai FR20.1302, 40 . Also, these of dose or alarm	v rates in lieu of 4 fluent release determined not to e estimations for DCM Dose and ow rates in ODCM r example, BVPS-1 esign (maximum) ions for all eight sure that DLC t compromised. ication provided for te operability and ent release n the level of DCFR Part 190, changes will not setpoint
8.2.16 <u>Change (</u>	16) of BV	/-1 and 2 ODCM (Effective April 200	2)	
8.2.16.1 A c	description	n of the changes implemented with thi	s revision are a	as follows:
8.2.16.1.1	The er delinea separa	tire BV-1 and 2 ODCM was convertented in 1/2-ADM-0100. As part of this ted into eight procedures as follows:	ed to the ODC s process, the	format as ODCM was
8.2.16.1.	1.1	<u>1/2-ODC-1.01, Rev 0</u> ; ODCM: Index Changes (formerly; ODCM Index and	, Matrix and H Appendix F)	listory of ODCM
8.2.16.1.	1.2	1/2-ODC-2.01, Rev 0; ODCM: Liqui Section 1 and 5)	d Effluents (fo	rmerly; ODCM
8.2.16.1.	1.3	1/2-ODC-2.02, Rev 0; ODCM: Gased Section 2 and 5)	ous Effluents (formerly; ODCM

Beaver Valle	Procedure Num 1/	ber: /2-ODC-1.01	
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8.2.16.1.1.4 <u>1/2-ODC-2.03, Rev 0;</u> ODCM: Radiolo Monitoring Program (formerly; ODCM)			nmental
8.2.16.1.1.5 <u>1</u>	1/2-ODC-2.04, Rev 0; ODCM: Informati formerly; ODCM Section 4)	on Related	to 40CFR190
8.2.16.1.1.6 <u>1</u> a	<u>1/2-ODC-3.01, Rev 0;</u> ODCM: Dispersion Calculational Procedure and Source Term Inputs (formerly; ODCM Appendix A & B)		
8.2.16.1.1.7 <u>1</u> C	/2-ODC-3.02, Rev 0; ODCM: Bases for ODCM Appendix D)	ODCM Co	ontrols (formerly;
8.2.16.1.1.8 <u>1</u> P	/2-ODC-3.03, Rev 0; ODCM: Controls Programs (formerly; ODCM Appendix C a	for RETS a and E)	and REMP
8.2.16.1.2 <u>Procedure 1/2-ODC-3.02, Rev 0</u> : Technical Specification Bases 3/4.3.3.1 was duplicated in the Bases for ODCM Controls as permitted by Unit 1/2 Technical Specification Amendments 1A-246/2A-124. ^(3.2.6.8)			
 8.2.16.1.3 Proceed: 3.3.3.1 ODCM Amend High R 9), RM and 109 Dischar Pump T Monito when the consider (or application) 8.2.16.1.4 Proceeding 	<u>ure 1/2-ODC-3.03, Rev 0</u> : Portions of Te (including portions of Tables 3.3-6 and 4 I Controls as permitted by Unit 1/2 Techn lments 1A-246/2A-124. ^(3.2.6.8) Specifically ange Channels of Noble Gas Effluent Mo (-1VS-110 (7 and 9), RM-1GW-109 (7 ar 9D], the Atmospheric Steam Dump Valve rge Monitors [RM-1MS-100A, B and C] Furbine Exhaust Monitor [RM-1MS-101] oring (PMM) was also added for clarification the primary instrument is inoperable. Addi- ered an editorial change because it merely ropriate form number), which were include ed station documents. <u>ure 1/2-ODC-3.03, Rev 0</u> : Added clarification	echnical Specifi (3-3) were (cal Specifi (r, this include (nitors [RM) (ad 9), and 2 (Code Safe (and Auxilia) (Code Safe (and Code Safe) (Code Sa	ecification LCO transferred to the cation des the Mid and -1VS-109 (7 and HVS-RQ109C ety Relief Valve ary Feedwater lanned Method of ssary actions PMM's are he asset number A's in previously
3.3.3.9 to the in releases are con	Table 3.3-13 to show that Action 30A an nitial batch purge of the reactor containment s of reactor containment atmosphere (i.e.; sidered continuous releases.	d Action 3 ent atmospl after the in	B are applicable here. All other itial batch purge)

Reave	Valley Power Station	Procedure Nun	nber:
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8.2.16.1.5	Procedure 1/2-ODC-3.03, Rev 0: Added specific ODCM Control 3.3.3.10 Table 3.3-13 and Table Flow Rate Monitor flow transmitters [2HVS-FI 2HVL-FIT112-1 and 2RMQFIT303-1] may be when the primary instruments [RM-11 Monitor 2RMQ-RQ301, 2HVL-RQ112 and 2RMQ-RQ31 INOPERABLE. This is considered an editorial monitoring channel (i.e.; RM-11 Monitor Item 2 input from these same flow transmitters.	fic plant ass e 4.3-13 to T101-1, 21 used as con Item 28 fo 303], respe change beo 28) display	set numbers to o show that Sample RMQ-FIT301-1, mparable alternates r 2HVS-RQ101, ctively, are cause the primary already receives its
8.2.16.1.6	Procedure 1/2-ODC-3.03, Rev 0: Added notation 3.3.3.10 Table 3.3-13 and Table 4.3-13 to show 5] may be used as a comparable alternate to [RM releases. However, since [RM-1GW-109 Channa automatic isolation of gaseous waste decay or su notation was also added to prevent using this ma alternate for batch releases. This is considered a merely specifies the asset number of a redundant that was included in previously approved station	on to ODC that [RM- M-1GW-10 nel 5] cann torage tank onitor as a an editorial t alternate	M Control 1GW-109 Channel 98B] for continuous ot perform an c releases, then comparable change because it monitoring channel cs.
8.2.16.1.7	Procedure 1/2-ODC-3.03, Rev 0: Replaced the Activity Monitors" in ODCM Control 3.3.3.10 13 with requirements for "Particulate and Iodine considered an editorial change because the NRC preparation of ODCM Controls (NUREG-1301) that the requirements listed in these Tables are for Samplers", and not for the "Particulate Activity"	requirement Tables 3.3- e Samplers' guidance) contains to or the "Part Monitors".	tts for "Particulate 13 and Table 4.3- '. This is document used for the clarification ticulate and Iodine
8.2.16.2 The	justification used for change (16) to the ODCM is	as follows	s:
8.2.16.2.1	The specific radiation monitoring channels transf alarms and indications to alert plant personnel of and to assist in evaluating and trending plant effl applicable if the monitors are inoperable require performed on a daily basis, or that explanations of in an annual effluent report. The Actions do not operability of other systems nor do the Actions re be terminated at any time.	ferred to the f high radia uents. The only that a of inoperate impact or require that	te ODCM provide ation conditions e Actions rea surveys be pility be provided reference the plant operation
8.2.16.2.2	Some of the radiation monitoring effluent monitor provide indications used to assess selected plant accident consistent with the recommendations of the monitors do not provide indication for post a been identified as Regulatory Guide 1.97 Type A	ors transfer parameters f NUREG- accident va a or Catego	rred to the ODCM s following an 0737. However, riables that have ory I.
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Beaver Valley Power Station			Procedure Number: 1/2-ODC-1.01		
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ODCM: Index, Matrix	x and History of ODCM Changes	8	42 of 84		
8.2.16.2.3	The Safety Analysis performed for the Licent the radiating monitoring channels transferred effectiveness of the requirements being reloc results in a change in the regulatory control to the requirements. The requirements will of the appropriate plant procedures in the same future changes to the transferred requirement accordance with 10 CFR 50.59 instead of re 10 CFR 50.90.	se Amendme I to the ODC ated. Rather required for r continue to b manner as b ts will be con quiring a lice	ents conclude that CM do not reduce the r, the transferred future changes made e implemented by before. However, ntrolled in ense amendment per		
8.2.16.2.4	Based on the above, these changes will main effluent control required by 10 CFR 20.1302 50.36a, and Appendix I to 10 CFR 50. Also the accuracy or reliability of effluent dose or	tain the level , 40 CFR Pa , these chang alarm setpoi	of radioactive rt 190, 10 CFR ges will not impact nt calculation.		
8.2.17 <u>Change (</u>	17) of BV-1 and 2 OCDM (Effective August 20	<u>)02)</u>			
8.2.17.1 A d	lescription of the changes implemented with this	s revision are	e as follows:		
8.2.17.1.1	Procedure 1/2-ODC-3.03, Rev 1: Technical Liquid Storage Tank Activity Limits, and LC Tank Activity Limits were transferred to OD 3.11.2.5 respectively as permitted by Unit 1/ Amendments 1A250/2A-130. ^(3.2.6.9)	Specification O 3.11.2.5, CM Control 2 Technical S	LCO 3.11.1.4 for for Gas Storage s 3.11.1.4 and Specification		
8.2.17.1.1	1.1 As part of the preparation work for tra Activity Limits to the ODCM, the 10 C re-verified and documented in Calculat 007 ^(3.2.3.9) The results of this calculated limits to ensure that the 10CFR20 App Limits will be maintained should an acc contents occur. Previously, LCO 3.11 Curies for each of the four tanks listed documentation for derivation of the 10 located in the records storage system.	nsfer of the l Curie Limit fo ion Package on provide ta endix B Tab cidental relea 1.4 used a g However, f Curie value	Liquid Storage Tank or these tanks was ERS-ATL-95- ink specific activity le 2, Col. 2 EC use of the tank(s) eneric limit of 10 formal could not be		
8.2.17.1.1	1.2 In addition, individual tank Activity lin 1 and 2 Refueling Water Storage Tank added to this ODCM Control. The Su determination of RWST Activity will n like the other Liquid Storage Tanks, be added to the RWST's on a weekly basi determination of (RWST's) Activity wi returning reactor cavity water (radioac (i.e.; during a refueling outage).	its were dev s (RWST's), rveillance Re ot be perforn cause radioa s. Therefore Il be perform tive material	eloped for the Unit which were also equirements for ned once per 7 days active material is not the surveillance for ed within 7 days of back to the RWST		

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8.2.17.1.2	Procedure 1/2-ODC-3.03, Rev 1: Changed the Radioactive Effluent Release Report from Apr Unit 1/2 Technical Specification Amendments	due date o il 1 to May 1A-250/2A	of the Annual 1 as permitted by -130. ^(3.2.6.9)	
8.2.17.1.3	Procedure 1/2-ODC-3.03, Rev 1: Changed Tal to correct an obvious omission of Channel Ope Requirements for Flow Rate Measurement Dev Liquid Waste Containment Drain Line. This of CR 02-05533. ^(3.2.2.12)	ble 3.3-12 c prability and vice [FR-11 bvious omis	of Control 3.3.3.9 I Action Statement LW-103] on the ssion is detailed in	
8.2.17.1.4	<u>Procedure 1/2-ODC-3.03, Rev 1</u> : Made editori primary asset numbers of the BVPS-2 Sample on Tables 3.3-13 and 4.3-13 of Control 3.3.3.1 the primary Sampler Flowrate Monitor is the d monitoring sample flowrate through the Particu Flowpath, not the Particulate and Iodine Monit	al changes Flowrate M 0. These c evice that i ulate and Ic coring Flow	to correct the Ionitors as shown changes clarify that s used for odine Sampler rpath.	
8.2.17.2 Th	e justification used for change (17) of the ODCM	is as follow	/S:	
8.2.17.2.1	These changes merely transfers existing storage Technical Specification to the ODCM and char Annual Radioactive Effluent Release Report as Technical Specification Amendments 1A-250/2 change, the ODCM Control for Liquid Storage enhanced to add ODCM Controls and Surveilla 1 and Unit 2 RWST's. Therefore, these change Technical Specification Amendments) will main effluent control required by 10 CFR 20.1302, 4 50.36a, and Appendix I to 10 CFR 50. Also, the the accuracy or reliability of effluent dose or all	e tank activ nges the due permitted A-130. As Tank Acti- ance Requires (as deline tain the lev 0 CFR Par- hese change arm setpoin	ity limits from the e date for the by Unit 1/2 s part of this vity Limits was rements for the Unit eated in the vel of radioactive t 190, 10 CFR es will not impact at calculation.	
8.2.18 <u>Change (</u>	18) of the BV-1 and 2 ODCM (Effective October	<u>2002)</u>		
8.2.18.1 A d	lescription of the changes implemented with this re	evision are	as follows:	
8.2.18.1.1	Procedure 1/2-ODC-3.03, Rev 2: Added requir groups notification of pending ODCM changes 05711. ^(3.2.2.13)	ement for a as describe	applicable station ed in CR 09-	
8.2.18.2 The	e justification used for change (18) of the ODCM i	s as follow	s:	
8.2.18.2.1	This change is considered editorial in nature, we Regulatory Applicability Determination. There impact the level of radioactive effluent control of 40CFR Part 190, 10CFR50.36a, and Appendix change will not impact the accuracy or reliabilit	hich exemp fore, this cl equired by I to 10CFF y of effluen	ts the change from nange will not 10CFR20.1302, 850. Also this nt dose or alarm	

setpoint calculation.

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ODCM: Index, Matrix and History of ODCM Changes	Revision: 8	Page Number: 44 of 84					
8.2.19 Change (19) of BV-1 and 2 ODCM (Effective November 2002)							
8.2.19.1 A description of the changes implemented with this	8.2.19.1 A description of the changes implemented with this revision are as follows:						
8.2.19.1.1 <u>Procedure 1/2-ODC-2.01, Rev 1</u> : Changed Table 1.1-1a and 1.1-1b to add Zn-65 to the respective BV-1 and 2 Liquid Source Term as described in CR 02-06174 (CA-01, CA-13 and CA-14). For information, zinc may be added to the reactor coolant system in an effort to reduce general corrosion of primary system materials and mitigation of stress corrosion cracking. Added benefits to zinc addition involve preferential release of nickel and cobalt which, in-turn, reduces plant dose rates. Development of the specific Zn-65 Annual Release Activity is delineated in Calculation Package No. ERS-ATL- 83-027. ^(3.2.3.1) Addition of Zn-65 to the source terms also caused changes in the Liquid Effluent Monitor Alarm Setpoints, and appropriate monitor conversion factors.							
8.2.19.1.2 <u>Procedure 1/2-ODC-2.01, Rev 1</u> : Table 1.1- remainder of the source term with annual rele Webster Calculation Package No. UR(B)-16	8.2.19.1.2 <u>Procedure 1/2-ODC-2.01, Rev 1</u> : Table 1.1-1a was changed to update the remainder of the source term with annual release values derived in Stone and Webster Calculation Package No. UR(B)-160. ^(3.2.3.10)						
8.2.19.1.3 <u>Procedure 1/2-ODC-2.01, Rev 1</u> : Editorial cl procedure for update of ODCM references an Liquid Waste Evaporators are no longer used waste.	8.2.19.1.3 <u>Procedure 1/2-ODC-2.01, Rev 1</u> : Editorial changes were made to this procedure for update of ODCM references and to add discussion of why Liquid Waste Evaporators are no longer used at BV-1 and 2 to process liquid waste.						
8.2.19.2 The justification used for change (19) of the ODCM	1 is as follow	s:					
 8.2.19.2.1 Addition of Zn-65 to the BV-1 and 2 Liquid Source Terms, along with update of the BV-1 and 2 Liquid Source Term is considered a procedure correction, and is enveloped by the Regulatory Applicability Determination performed for BV-1 ECP-02-0410. Based on the above, these changes will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR 50. Also, these changes will not impact the accuracy or reliability of effluent dose or alarm setpoint calculation. 							
8.2.20 Change (20) of BV-1 and 2 ODCM (Effective October 20	003)						
8.2.20.1 A description of the changes implemented with this	8.2.20.1 A description of the changes implemented with this revision are as follows:						
8.2.20.1.1 <u>Procedure 1/2-ODC-2.01, Rev 2</u> : Changed L (Attachment D) to indicate the flow path for Unit 1 and Unit 2.	8.2.20.1.1 <u>Procedure 1/2-ODC-2.01, Rev 2</u> : Changed LW System diagrams (Attachment D) to indicate the flow path for cross connect of LW between Unit 1 and Unit 2.						
8.2.20.1.2 <u>Procedure 1/2-ODC-2.02, Rev 1</u> : Changed Taterm for the Unit 1 Containment Vacuum Pur (CA-03).	able 2.1-1 to nps as describ	revise the source bed in CR03-04830					

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8.2.20.1.3	Procedure 1/2-ODC-3.03, Rev 3: Changed the Monitoring (PMM) in Attachment D Table 3.3- Specifically, the 2nd PMM for the Reactor Buil Range Noble Gas Monitors (RM-1VS-110 Ch FROM "(RM-1VS-107B)" TO "(RM-1VS-107 Also, the 2nd PMM for the Auxiliary Building V High Range Noble Gas Monitors (RM-1VS-101 FROM "(RM-1VS-101B)" TO "(RM-1VS-101 Similarly, the 2nd PMM for the Gaseous Waste High Range Noble Gas Monitors (RM-1GW-100 FROM "(RM-1GW-108B)" TO "(RM-1GW-100	Preplanned 6 and Tabl ding/SLCR 7 & Ch 9) v B, or RM-1 Ventilation 9 Ch 7 & C B, or RM-1 / Process V 09 Ch 7 & (08B, or RM	Method of e 4.3-3. S Mid & High was changed IVS-110 Ch 5)". System Mid & h 9) was changed IVS-109 Ch 5)". Yent System Mid & Ch 9) was changed I-1GW-109 Ch 5)".
8.2.20.1.4	<u>Procedure 1/2-ODC-3.03, Rev 3</u> : Changed Atta update the activity limits for the liquid storage to Calculation Package No. ERS-ATL-95-007.	achment J C anks to the	Control 3.11.1.4 to values specified in
8.2.20.1.5	<u>Procedure 1/2-ODC-3.03, Rev 3</u> : Changed Atta add more specific guidance for sampling of Gas Specifically, this table is generic for Unit 1 & Un Pathways, but sampling may only need required Effluent Pathways rather than all of the Gaseous be inferred from the wording in the Table Notat unnecessary sampling, applicability statements v delineate which ventilation systems are affected includes a clarification of how compliance to thi response to NRC Unresolved Item 50-334/83-3	achment K eous Efflue nit 2 Gaseo at some of s Effluent P ion). There vere added by the note s requireme 0-05.	Table 4.11-2 to ent Pathways. us Effluent The Gaseous Pathways (as could efore to prevent to this table to e(s). Also, note (f) ent is achieved per
8.2.20.2 The	justifications used for change (20) of the ODCM	are as follo	ws:
8.2.20.2.1	Procedure 1/2-ODC-2.01, Rev 2: Changing the cross connect between Unit 1 and Unit 2 is not a configuration, and is considered a procedure con procedure of the ODCM already describes the si system. Also, the UFSAR's describe the cross of this change will maintain the level of radioactive 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50. CFR 50. Also, this change will not impact the a effluent dose or alarm setpoint calculation.	diagram to a change to rrection. Sp hared radw connect. Ba effluent co 36a, and A ccuracy or	show the LW plant pecifically, this aste treatments ased on the above, ontrol required by ppendix I to 10 reliability of

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ODCM:	Index, Matri 8.2.20.2.2 8.2.20.2.3 8.2.20.2.4	 x and History of ODCM Changes <u>Procedure 1/2-ODC-2.02, Rev 1:</u> The original GW System was based on an operating flow rate for containment vacuum pumps. The flow rate for Consequently, the source-term was revised per HHM-87-014 and then transcribed to this propumps represent a factor of 15 increase in flow monitor alarm setpoints are unchanged. Specewere based on a percentage of Offsite Dose R were actually above the range of the instrume substituted. This is also true for the re-calcula scale values are used. In summary, changing procedure correction, and is enveloped by the Determination performed for BV-1 ECP-02-0 change will maintain the level of radioactive e CFR 20.1302, 40 CFR Part 190, 10 CFR 50.3 50. Also, this change will not impact the accur dose or alarm setpoint calculation. This procedure 1/2-ODC-3.03, Rev 3: Changing th Monitoring (PMM) will prevent unnecessary ge PMM) when the primary channel for the Mid. Monitor is inoperable. Specifically, JF other 1 are available on that effluent pathway, THEN with those channels as the 2nd PMM. In sum obtaining grab gas samples every 12 hours) sh last resort to a complete lack of continuous no being available on that effluent pathway. Base maintain the level of radioactive effluent contr 20.1302, 40 CFR Part 190, 10 CFR 50.36a, an Also, this change will not impact the accuracy alarm setpoint calculation. This procedure cl Action per CR03-06123-01. Procedure 1/2-ODC-3.03, Rev 3: Changing th storage tanks does not affect original plant accord the original analyses were performed in accord 15.7.3 using the best available data at that time also performed in accordance the same NURE data was used to determine allowable activity the above, this change will maintain the level or required by 10 CFR 50. Also, this change will maintain the level or required by 10 CFR 50. Also, this change will maintain the level or required by 10 CFR 50. Also, this change will maintain the level or reliability of effluent dose or alarm setpoint ca	l source-tern rate of 5 sch or the new p er Calculatio cedure. Alt w rate, the g ifically, the p ate Limits, a nts, so an or ted setpoint the source ter Regulatory 079. Based ffluent contra 6a, and App aracy or relia cedure chang a samplin or High Ram Voble Gas M monitoring mary, the 3r ould only be oble gas mor d on the abo ol required to a Appendix or reliability hange implet e activity lin- cident analys lance with N e. The upda G, but curre content in ea f radioactive 0, 10 CFR 5 vill not impa culation. The 03-07487-0	Add of 84 m calculation for the m for the Unit 1 umps is 70 scfm. on Package ERS- hough the new gaseous effluent previous setpoints and those values n-scale value was s, so the same on- erm is considered a Applicability on the above, this fol required by 10 pendix I to 10 CFR ability of effluent ge implements a and Method of ag (ie; the 3rd age Noble Gas fonitoring channels should be assumed d PMM (ie; e performed as a alitoring channels should be assumed d PMM (ie; e performed as a alitoring channels ove, this change will by 10 CFR a I to 10 CFR 50. y of effluent dose or ments a Corrective mits for liquid tes. Specifically, IUREG-0800 SRP ted analyses were ent (more accurate) ach tank. Based on e effluent control 0.36a, and ct the accuracy or his procedure 05.

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8.2.20.2.5	Procedure 1/2-ODC-3.03, Rev 3: Changing At add more specific guidance for sampling of Ga considered a simple change. Specifically, this of unnecessary sampling of unaffected ventilation above, this change will maintain the level of rad required by 10 CFR 20.1302, 40 CFR Part 190 Appendix I to 10 CFR 50. Also, this change w reliability of effluent dose or alarm setpoint cal- change implements a Corrective Action per CR	tachment I seous Efflu change men pathways. lioactive ef 0, 10 CFR f vill not imp culation. 7 03-06281-	K Table 4.11-2 to lent Pathways is rely prevents Based on the ffluent control 50.36a, and act the accuracy or This procedure -01.
8.2.21 <u>Change (2</u>	21) of BV-1 and 2 ODCM (Effective November 2	2004)	
8.2.21.1 A d	escription of the changes implemented with this r	evision are	as follows:
8.2.21.1.1	Procedure 1/2-ODC-1.01, Rev 4, Procedure 1/ Procedure 1/2-ODC-3.03, Rev 4: Changed ow Radiation Protection Section to the Nuclear Er Section per CR05-01169-14, CR05-01169-15	2-ODC-2. nership of ivironment and CR05-	01, Rev 3 and procedures from the al & Chemistry -01169-21
8.2.21.1.2	Procedure 1/2-ODC-2.01, Rev 3: Changed Att volume of Liquid Waste Drain Tanks (2LWS-7 gal/tank to 10,000 gal/tank.	achment D [K21A/21]	to correct the 3) from 7,500
8.2.21.1.3	Procedure 1/2-ODC-3.03, Rev 4: Changed Att increased flexibility in Mode restraints that is do 193 and CR03-09288-19.	achment C escribed in	to implement the LAR 1A-321/2A-
8.2.21.1.4	Procedure 1/2-ODC-3.03, Rev 4: Corrected a t Attachment O, Control 3.11.2.5 per CR03-117 word in Action (a) was changed from "nad" to	ypographi 26-01. Spe "and".	cal error in ecifically, the final
8.2.21.1.5	Procedure 1/2-ODC-3.03, Rev 4: Revised Atta 4.3-13) to correct a typographical error per CR the Asset Number for the Vacuum Gauge used flow (from the Alternate Sampling Device) was to [PI-1GW-135].	chment F, .04-01643- for measurs changed f	(Table 3.3-13 and 01. Specifically, rement of sample rom [PI-1GW-13]
8.2.21.1.6	Procedure 1/2-ODC-3.03, Rev 4: Revised Atta 4.3-13) per CR04-02275-01. Specifically, clari indicate that the "Sampler Flow Rate Monitors "Particulate and Iodine Sampling".	chment F, fication wa are the dev	(Table 3.3-13 and as provided to vices used for
8.2.21.1.7	<u>Procedure 1/2-ODC-3.03, Rev 4</u> : Revised Atta ACTION a, to add clarification that requires sp Part 20 EC's when the individual tank limits are	chment J, (ecific calcu e exceeded	Control 3.11.1.4, alation of 10 CFR

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8.2.21.2 The	justifications used for change (21) of the ODCM	A are as foll	lows:
8.2.21.2.1	Procedure 1/2-ODC-1.01, Rev 4, Procedure 1 Procedure 1/2-ODC-3.03, Rev 4: Changing or from Radiation Protection to Nuclear Environ considered a procedure correction. <u>SINCE</u> th RETS, REMP and ODCM responsibilities to a changes will maintain the level of radioactive e CFR 20.1302, 40 CFR Part 190, 10 CFR 50.3 50. Also, the changes will not impact the accu dose or alarm setpoint calculation. The proce Corrective Actions per CR05-01169-14, CR02 21.	<u>/2-ODC-2.</u> wnership of mental & C e changes r a different n effluent con 6a, and Ap tracy or reli dure change 5-01169-15	01, Rev 3 and f these procedures chemistry is nerely transfers nanager, <u>THEN</u> the trol required by 10 pendix I to 10 CFR iability of effluent es implement 6, and CR05-01169-
8.2.21.2.2	Procedure 1/2-ODC-2.01, Rev 3: Changing the Waste Tank is considered a procedure correct typographical error on the Attachment, <u>THEN</u> tank volume that is used in effluent release cal- determinations. Therefore, this change will ma effluent control required by 10 CFR 20.1302, 50.36a, and Appendix I to 10 CFR 50. Also, t accuracy or reliability of effluent dose or alarm	e volume o ion. <u>SINCI</u> it does not culations an aintain the l 40 CFR Par his change a setpoint ca	f the Unit 2 Liquid <u>E</u> this was a t impact the actual ad offsite dose evel of radioactive rt 190, 10 CFR will not impact the alculation.
8.2.21.2.3	Procedure 1/2-ODC-3.03, Rev 4: Changing Agincreased flexibility in Mode restraints (describ considered a simple change. <u>SINCE</u> the chang provided in the Technical Specifications, <u>THE</u> level of radioactive effluent control required by Part 190, 10 CFR 50.36a, and Appendix I to 1 will not impact the accuracy or reliability of effi- calculation. This procedure change implement CR03-09288-19.	ttachment C ed in LAR ge implemer <u>N</u> the chang 7 10 CFR 2 0 CFR 50. Cluent dose s a Correct	C to implement the 1A-321/2A-193) is its guidance ge will maintain the 0.1302, 40 CFR Also, this change or alarm setpoint ive Action per
8.2.21.2.4	Procedure 1/2-ODC-3.03, Rev 4: The typogra Control 3.11.2.5 is considered a procedure cor change will maintain the level of radioactive eff CFR 20.1302, 40 CFR Part 190, 10 CFR 50.30 50. Also, this change will not impact the accur dose or alarm setpoint calculation. This procee Corrective Action per CR03-11726-01.	phical error rection. Th fluent contr 5a, and App racy or relia dure change	in Attachment O, nerefore, this rol required by 10 pendix I to 10 CFR ability of effluent e implements a

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	8.2.21.2.5	Procedure 1/2-ODC-3.03, Rev 4: Correcting th Attachment F, (Table 3.3-13 and 4.3-13) is con- correction. <u>SINCE</u> this change merely corrects change will maintain the level of radioactive eff CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36 50. Also, this change will not impact the accur dose or alarm setpoint calculation. This proceed Corrective Action per CR04-01643-01.	ne typograp nsidered a p s an obviou fluent contr 5a, and App acy or relia flure change	phical error in procedure s error, <u>THEN</u> this ol required by 10 pendix I to 10 CFR bility of effluent e implements a
	8.2.21.2.6	Procedure 1/2-ODC-3.03, Rev 4: Providing cla Flow Rate Monitors is considered a simple cha misinterpret which filter paper sampler (e.g.; m specification was referring to. <u>SINCE</u> no chan samplers used for effluent release calculations of <u>THEN</u> this change will maintain the level of rad required by 10 CFR 20.1302, 40 CFR Part 190 Appendix I to 10 CFR 50. Also, this change w reliability of effluent dose or alarm setpoint calc change implements a Corrective Action per CR	rification for nge, because oving filter ges were m or offsite do lioactive eff , 10 CFR 5 ill not impa culation. T .04-02275-0	or the Sampler se it was possible to or fixed filter) the ade to actual ose determinations, fluent control 0.36a, and act the accuracy or his procedure 01.
	8.2.21.2.7	Procedure 1/2-ODC-3.03, Rev 4: Providing cla calculation of 10 CFR Part 20 EC's (when the exceeded) is considered a simple change. Spec limits were derived from an assumed source-ter representative of the actual source term at time also ensures that a "Special Report" is submitte 20 EC limits are actually exceeded (i.e.; when c analysis) at the nearest surface water supply and supply in the unrestricted area. Per Calculation 007 ^(3.2.3.9) , the nearest surface water supply and supply are considered to be the entrance to the Facility. <u>SINCE</u> no changes were made to the limits, <u>THEN</u> this change will maintain the leve control required by 10 CFR 20.1302, 40 CFR F Appendix I to 10 CFR 50. Also, this change w reliability of effluent dose or alarm setpoint calculation	rification the individual trifically, the m and may of sample. I of sample. I of sample alculated u alculated u the neares Package N the neares Midland W bases for the l of radioac Part 190, 10 ill not impa- culation.	hat requires ank limits are individual tank not be This clarification in the 10 CFR Part sing actual sample st potable water to. ERS-ATL-95- t potable water fater Treatment the tank activity tive effluent 0 CFR 50.36a, and ct the accuracy or

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8.2.22 <u>Change (2</u>	22) of BV-1 and 2 ODCM (Effective August 2000	<u>6)</u>	
8.2.22.1 A d	escription of the changes implemented with this re-	evision are	as follows:
8.2.22.1.1	Procedure 1/2-ODC-2.01, Rev 4: Incorporated Specification Reference changes from T.S. 6.8. 03306. Revised the alarm setpoints of [RM-1F via vendor calculation Package No. 8700-UR(I the Extended Power Uprate (EPU) at Unit 1 pe Amendment No. 275 and CR06-04908-03. Up Effluent Release Points (Attachment D, Figure modified version of Plant Drawing No. 8700-R	Improved 6 to T.S. 5 (M-100] an 3)-223. Ther ECP-04- odated the f 1.4-3) to i M-27F per	Technical 5.5.2, per CR05- nd [RM-1DA-100] hese changes reflect -0440, Unit 1 TS figure of Liquid ncorporate a r CR05-03854-01.
8.2.22.1.2	Procedure 1/2-ODC-2.02, Rev 2: Changed own Radiation Protection Section to the Nuclear En Section per CR05-01169-16. Incorporated a " range noble gas effluent monitor alarm setpoint vendor calculation Package No. 8700-UR(B)-2 Extended Power Uprate (EPU) at Unit 1 per En Amendment No. 275 and CR06-04908-04.	nership of j wironment. ≤" designa s to meet t 223. These CP-04-044	procedure from the al & Chemistry tion for all low the provisions of changes reflect the 40, Unit 1 TS
8.2.22.1.3	Procedure 1/2-ODC-3.03, Rev 5: Revised the a range and high range noble gas effluent monitor Package No. 8700-UR(B)-223. These changes Uprate (EPU) at Unit 1 per ECP-04-0440, Unit and CR06-04908-03.	larm setpo rs via vend reflect the t 1 TS Ame	oints of the mid or calculation e Extended Power endment No. 275
8.2.22.2 The	justifications used for change (22) of the ODCM	are as follo	ows:
8.2.22.2.1	Procedure 1/2-ODC-2.01, Rev 4: Updating the of liquid effluent release points are considered p they merely update the ODCM to agree with pr that were implemented with TS Amendments. updates the ODCM, <u>THEN</u> the change will mai effluent control required by 10 CFR 20.1302, 4 50.36a, and Appendix I to 10 CFR 50. Also, th accuracy or reliability of effluent dose or alarm PORC review & acceptance is required per TS <u>THEN</u> the review is considered complete per R Determination RAD-06-03831, RAD-06-01658 previously noted, these procedure changes imple CR06-04908-03, and CR05-03854-01.	alarm setp procedure of reviously a <u>j</u> <u>SINCE</u> the intain the le 0 CFR Par ne change v setpoint ca 6.14 and 1 egulatory 2 and RAD ement Cor	points and the figure corrections, because pproved documents e change merely evel of radioactive t 190, 10 CFR will not impact the alculation. <u>SINCE</u> /2-ADM-1640, Applicability -06-05070. As rective Actions per

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8.2.22.2.2	Procedure 1/2-ODC-2.02, Rev 2: Changing and updating the alarm setpoints with a "≤" procedure corrections, because they merely previously approved documents that were in Amendments. <u>SINCE</u> the change merely up change will maintain the level of radioactive CFR 20.1302, 40 CFR Part 190, 10 CFR 50 50. Also, the change will not impact the ac dose or alarm setpoint calculation. <u>SINCE</u> required per TS 6.14 & 1/2-ADM-1640, <u>TH</u> complete per Regulatory Applicability Dete RAD-06-01658. As previously noted, these Corrective Actions per CR05-01169-16 and	the ownershi designation as update the O mplemented v odates the OD effluent cont 0.36a, and Ap curacy or relia PORC review <u>HEN</u> the revie rmination RA e procedure cl 1 CR06-04908	p of the procedure re considered DCM to agree with vith TS DCM, <u>THEN</u> the rol required by 10 pendix I to 10 CFR ability of effluent v & acceptance is tw is considered D-06-03831 and hanges implement 3-04.
8.2.22.2.3	Procedure 1/2-ODC-3.03, Rev 5: Updating a procedure correction, because this merely previously approved documents that were in Amendments. <u>SINCE</u> the change merely up change will maintain the level of radioactive CFR 20.1302, 40 CFR Part 190, 10 CFR 50 50. Also, the change will not impact the act dose or alarm setpoint calculation. <u>SINCE</u> required per TS 6.14 & 1/2-ADM-1640, <u>TH</u> complete per Regulatory Applicability Dete RAD-06-01658. As previously noted, these Corrective Actions per CR06-04908-03.	the alarm sety updates the O mplemented w odates the OD effluent cont 0.36a, and Ap curacy or relia PORC review <u>HEN</u> the revie mination RA	points is considered DDCM to agree with with TS DCM, <u>THEN</u> the rol required by 10 pendix I to 10 CFR ability of effluent v & acceptance is w is considered D-06-03831 and nanges implement
8.2.23 <u>Change</u>	(23) of BV-1 and 2 ODCM (Effective December	e <u>r 2006)</u>	
8.2.23.1 A 8.2.23.1.1	<u>Procedure 1/2-ODC-1.01, Rev 5</u> : Changed procedure matrix to add Form 1/2-ENV-01 performing a Channel Functional Test of the Gaseous Effluent Sampler Flowrate Measur Attachment C Tables were also changed to Channel Checks from Operations (L5 Logs) Chemistry (Form 1/2-ADM-0606.F01 & F0 Improved Technical Specifications (ITS), ch reflect change in term from CHANNEL FUI CHANNEL OPERATIONAL TEST (COT) requirements for ODCM changes record rev Revised step 5.3 to require ODCM changes	Attachment C 04.F01 as do unit 1 Prima ing Devices p denote transit to Nuclear E 2) per CR05- anged Attach NCTIONAL 0, and added s iew and reten be reviewed a	as follows: c, Table F: 3a of the cumentation for rry and Alternate er CR04-09895. ion of ODCM nvironmental & 01422. Also, per iment C Tables to FEST to tep 4.1.2 to identify tion requirements. and accepted by

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8.2.23.1.2	Procedure 1/2-ODC-2.01, Rev 5: Revised the a RQ101] via vendor calculation Package No. 10 changes reflect the Extended Power Uprate (EP 0441, Unit 2 TS Amendment No. 156 and CR0	larm setpo 080-UR(B PU) at Unit 6-6476-01	ints of [2SWS-)-508. These t 2 per ECP-04-
8.2.23.1.3	Procedure 1/2-ODC-2.03, Rev 1: Updated the electronic solutions with the most recent survey results that Global Positioning System per CR05-01390-02.	existing RI at were per	EMP sampling formed using a
8.2.23.1.4	Procedure 1/2-ODC-3.02, Rev 2: Changed own Radiation Protection Section to the Nuclear Environment Section per CR05-01169-20.	ership of p vironmenta	procedure from the al & Chemistry
8.2.23.1.5	Procedure 1/2-ODC-2.03, Rev 1, Procedure 1/2 Procedure 1/2-ODC-3.01, Rev 1: Changed own Radiation Protection Section to the Nuclear Env Section per CR05-01169-17, CR05-01169-18 a	2-ODC-2.0 ership of p vironmenta nd CR06-0	04, Rev 1 and procedures from the al & Chemistry 01169-19.
8.2.23.2 The	justifications used for change (23) of the ODCM	are as follo	DWS:
8.2.23.2.1	Procedure 1/2-ODC-1.01, Rev 5: Changing Atta procedure matrix to add Form 1/2-ENV-01.04.1 performing the Channel Functional Test of the U Gaseous Effluent Sampler Flowrate Measuring 1 procedure correction, because no Acceptance C Transition of ODCM Channel Checks from Ope Environmental & Chemistry (Form 1/2-ADM-00 considered a procedure correction, because the altered <u>SINCE</u> these changes merely correct the the changes will maintain the level of radioactive 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50. CFR 50. Also, the change will not impact the ac effluent dose or alarm setpoint calculation. As p procedure changes implement Corrective Action 01422 and CR05-03306.	achment C F01 as doc Jnit 1 Prim Devices is riteria was rations (L 606 F01 & no Accept a procedu e effluent c 36a, and A ccuracy or previously as per CR0	 a, Table F: 3a of the sumentation for nary and Alternate considered a altered. 5 Logs) to Nuclear F02) is also ance Criteria was re matrix, <u>THEN</u> control required by Appendix I to 10 reliability of noted, these 4-09895, CR05-

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	8.2.23.2.2 8.2.23.2.3 8.2.23.2.4	 <u>Procedure 1/2-ODC-2.01, Rev 5</u>: Updating the a procedure correction, because this merely update previously approved documents that were implex Amendments. <u>SINCE</u> the change merely update change will maintain the level of radioactive effective of the change will maintain the level of radioactive effective does or alarm setpoint calculation. <u>SINCE POF</u> required per TS 6.14 & 1/2-ADM-1640, <u>THEN</u> complete per Regulatory Applicability Determine previously noted, these procedure changes implete CR06-6476-01. <u>Procedure 1/2-ODC-2.03, Rev 1</u>: Updating the locations with the most recent survey results that Global Positioning System is considered a proceed change provides more accurate distances to exist locations, <u>THEN</u> the change will maintain the lecontrol required by 10 CFR 20.1302, 40 CFR P Appendix I to 10 CFR 50. Also, the change will reliability of effluent dose or alarm setpoint calculation procedure 1/2-ODC-2.03, Rev 1, Procedure 1/2 Procedure 1/2-ODC-3.01, Rev 1 Changing own from Radiation Protection to Nuclear Environm considered a procedure correction. <u>SINCE</u> the RETS, REMP and ODCM responsibilities to a change will maintain the level of radioactive efflic CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a 50. Also, the change will not impact the accurate dose or alarm setpoint calculation. These procedure correction. These procedure correction for the accurate change will maintain the level of radioactive efflic CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a 50. Also, the change will not impact the accurate dose or alarm setpoint calculation. These procedure dose or alarm setpoint calculation. SINCE the accurate dose or alarm setpoint calculation. These procedure dose or alarm setpoint calculation. 	alarm setp lates the O emented wi es the ODC uent contro a, and App cy or reliab C review the review lation RAD ement Corre- ting REMI vel of radio art 190, 10 l not impace ulation. The 4-00149-12 <u>-ODC-2.0</u> - nership of t ental & Ch changes ma lifferent ma uent control a, and Appe cy or reliab dure chang	oints is considered DCM to agree with th TS CM, <u>THEN</u> the ol required by 10 endix I to 10 CFR oility of effluent & acceptance is v is considered 0-06-04585. As rective Actions per EMP sampling formed using a ction. <u>SINCE</u> the P sampling bactive effluent 0 CFR 50.36a, and ct the accuracy or ne procedure 2 and CR05- <u>4, Rev 1 and</u> hese procedures emistry is erely transfers anager, <u>THEN</u> the ol required by 10 endix I to 10 CFR ility of effluent es implement	
		19.			
8.2.2	4 <u>Change (24</u>) of BV-1 and 2 ODCM (Effective May 2007)			
8.2	2.24.1 A des	scription of the changes implemented with this rev	ision are a	s follows:	
	8.2.24.1.1	Procedure 1/2-ODC-3.03, Rev 6: Incorporated I Specifications (ITS). This includes transfer of pr 2 Noble Gas Effluent Steam Monitors [2MSS-R and [2MSS-RQ101C] from the Technical Specif 1/2-ODC-3.03 (Attachment D Tables 3.3-6 and 03306.	Improved 7 ogrammati Q101A], [2 ications to 4.3-3). Re	Fechnical c controls for BV- 2MSS-RQ101B] ODCM procedure ference CR05-	

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	8.2.24.1.2	Procedure 1/2-ODC-3.03, Rev 6: Revised Attac liquid storage tank activity limits via Calculation 007, R2. Reference SAP Order 200197646-011	chment J to n Package I 0.	update the outside No. ERS-ATL-95-
	8.2.24.1.3	Procedure 1/2-ODC-3.03, Rev 6: Revised Attac Applicability for tank level indicating devices is Reference CR06-04944.	chment E to during add	o clarify that the itions to the tank.
	8.2.24.1.4	Procedure 1/2-ODC-3.03, Rev 6: Revised Attact an alternate Action when the primary Flow Rate 1CW-101-1] is not OPERABLE. The alternate measurements (as described in 1MSP-31.06-I) t flow rate during liquid effluent releases. Referen	chment E T Measurem Action (25 o determin ace SAP Or	Table 3.3-12 to add nent Device [FT- 5) uses local e a total dilution order 200240681.
	8.2.24.1.5	Procedure 1/2-ODC-3.03, Rev 6: Revised Attact 4.3-13 to clarify the Functional Location of the for the BV-2 gaseous effluent release pathways. was changed to refer to Functional Location [2H [2HVS-FIT101], [2RMQ-FIT301-1] instead of FIT112-1] instead of [2HVL-FIT112], and [2RM [2RMQ-FIT303]. Reference CR07-12924 and S	Sampler F Sampler Fle Specifical IVS-FIT1([2RMQ-FI MQ-FIT30] SAP Order	ables 3.3-13 and ow Rate Monitors ly, the procedure 01-1] instead of T301], [2HVL- 3-1] instead of 200247228-0410.
8.	2.24.2 The ji	ustifications used for change (24) of the ODCM	are as follo	WS:
	8.2.24.2.1	<u>Procedure 1/2-ODC-3.03, Rev 6</u> : Incorporating Specifications (ITS) is considered a simple chan performed in accordance with the guidance prov Specification Amendments No. 278/161. The IT of programmatic controls for BV-2 Noble Gas E [2MSS-RQ101A], [2MSS-RQ101B] and [2MSS Technical Specifications to ODCM procedure 1/ Tables 3.3-6 and 4.3-3. <u>SINCE</u> the change was p the TS Amendments, <u>THEN</u> the change will mai effluent control required by 10 CFR 20.1302, 40 50.36a, and Appendix I to 10 CFR 50. Also, the accuracy or reliability of effluent dose or alarm s review and acceptance of this change was compl procedure change implements Corrective Action	the Improv ge, because ided in Uni S upgrade Effluent Ste S-RQ101C (2-ODC-3.0 performed in ntain the le O CFR Part e change we etpoint call eted in Ma s per CR05	ved Technical e this was it 1/2 Technical includes transfer am Monitors] from the 03 (Attachment D in accordance with evel of radioactive 190, 10 CFR ill not impact the culation. PORC y 2007. The 5-03306.

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8.2.24.2.2	<u>Procedure 1/2-ODC-3.03, Rev 6</u> : Revisir outside liquid storage tank activity limits ATL-95-007, R2 is considered a simple of implements updated release volumes and documents. <u>SINCE</u> the change was perfor guidance provided in Standard Review PI the change will maintain the level of radio 10 CFR 20.1302, 40 CFR Part 190, 10 C CFR 50. Also, the change will not impace effluent dose or alarm setpoint calculation this change was completed in May 2007.	ng Attachment J t via Calculation F source-terms fro ormed in accorda an 15.7.3 of NU pactive effluent c FR 50.36a, and J t the accuracy of n. PORC review	to update the Package No. ERS- his change merely on other station unce with the REG-0800, <u>THEN</u> ontrol required by Appendix I to 10 reliability of and acceptance of
8.2.24.2.3	Corrective Actions per SAP Order 20019 <u>Procedure 1/2-ODC-3.03, Rev 6:</u> Revisin Applicability for tank level indicating dev considered a simple change, because this Applicability of the instrument. <u>SINCE</u> t clarification of existing Applicability, <u>THI</u> level of radioactive effluent control requin Part 190, 10 CFR 50.36a, and Appendix will not impact the accuracy or reliability calculation. PORC review and acceptance May 2007. The procedure change impler 04944-01.	27646-0110. ag Attachment E ices is during add merely clarifies t his change merely <u>EN</u> the change werely red by 10 CFR 20 I to 10 CFR 50. of effluent dose e of this change ments Corrective	to indicate that the litions to the tank is he existing y provides ill maintain the 0.1302, 40 CFR Also, the change or alarm setpoint was completed in Actions per CR06-
8.2.24.2.4	Procedure 1/2-ODC-3.03, Rev 6: Revisin an alternate Action when the primary Flov 1CW-101-1] is not OPERABLE is consid of an alternate Action does not modify the the primary and alternate flow rate instrum this change merely provides an alternate r rate during liquid releases, <u>THEN</u> the cha radioactive effluent control required by 10 10 CFR 50.36a, and Appendix I to 10 CF impact the accuracy or reliability of efflue calculation. PORC review and acceptanc May 2007. The procedure change implem Order 200240681.	g Attachment E w Rate Measurer lered a simple ch e intent of estimat nents are not OP neans of estimati nge will maintair O CFR 20.1302, 4 R 50. Also, the nt dose or alarm e of this change we	Table 3.3-12 to add nent Device [FT- ange, because use ting flow rate when ERABLE. <u>SINCE</u> ng dilution flow the level of 40 CFR Part 190, change will not setpoint was completed in Actions per SAP

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8.2.24.2.5 Procedure 1/2-ODC-3.03, Rev 6: Revising Attachment F Tables 3.3-13 and 4.3-13 to clarify the Functional Location of the Sampler Flow Rate Monitors for the BV-2 gaseous effluent release pathways is considered a simple change, because this merely clarifies the actual Functional Location in use. SINCE this change merely updates a location title, THEN the change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR 50. Also, the change will not impact the accuracy or reliability of effluent dose or alarm setpoint calculation. PORC review and acceptance of this change was completed in May 2007. The procedure change implements Corrective Actions per CR07-12924 and SAP Order 200247228-0410.

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litle:		Unit:	Level Of Use:
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LIQUID	EFFLUENTS Included in Procedure 1/2-ODC-2.01		
1.1-1a	BV-1 Liquid Source Term		
1.1 - 1b	BV-2 Liquid Source Term		
1.2-1a	BV-1 Recirculation Times Required Before Sampling Of I	Liquid Disch	arge Tanks
1.2-1b	BV-2 Recirculation Times Required Before Sampling Of I	Liquid Disch	arge Tanks
1.3-1	$A_{i\tau}$ Values For An Adult For The Beaver Valley Site		
GASEO	US EFFLUENTS Included in Procedure 1/2-ODC-2.02		
2.1-1a	BV-1 Radionuclide Mix For Gaseous Effluents		
2.1 - 1b	BV-2 Radionuclide Mix For Gaseous Effluents		
2.1 - 2a	BV-1 Monitor Detector Efficiencies		
2.1 - 2b	BV-2 Monitor Detector Efficiencies		
2.2-1	Modes Of Gaseous Release From Beaver Valley Site Vent 20 And 10 CFR 50	s For Impler	nentation Of 10 CFR
2.2-2a	BV-1 Radionuclide Mix For Gaseous Effluents		
2.2-2b	BV-2 Radionuclide Mix For Gaseous Effluents		
2.2-3	Distances Of Limiting Maximum Individual Receptors To Values	Release Poin	ts For Annual χ/Q
<u>ANNUA</u>	L AVERAGE χ/Q Included in Procedure 1/2-ODC-2.02		
2.2-4	BV-1 And 2 Containment Vents (Ground Release)		
2.2-5	BV-1 And 2 Ventilation Vents (Ground Release)		
2.2-6	BV-1 And 2 Process Vent (Elevated Release)		
2.2-7	BV-1 And 2 Turbine Building Vents (Ground Release)		
2 2-8	BV-2 Decontamination Building Vent (Ground Release)		

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-2 m	ATTACHMENT A Page 2 of 6 LIST OF ODCM TABLES	0	1
2.2-9	BV-2 Waste Gas Storage Vault Vent (Ground Release)		
2.2-10	BV-2 Condensate Polishing Building (Ground Release)	·	
NOBLE	GAS DOSE FACTORS AND DOSE PARAMETERS Include	d in 1/2-0	<u>DC-2.02</u>
2.2-11	Dose Factors For Noble Gases And Daughters		
2.2-12	Dose Parameters For Finite Elevated Plumes, Beaver Valley	Site	
<u>P&I DOS</u>	SE PARAMETERS Included in 1/2-ODC-2.02		
2.2-13	Pit Values For A Child For The Beaver Valley Site		
MODES	OF GASEOUS RELEASES Included in Procedure 1/2-ODC-2	2.02	
2.3-1	Modes Of Gaseous Release From The Beaver Valley Site Ve CFR 20 And 10 CFR 50	ents For In	plementation Of 10
<u>P&I ORC</u>	GAN DOSE FACTORS Included in 1/2-ODC-2.02		
2.3-2	R Values for Inhalation - Adult		
2.3-3	R Values for Inhalation - Teen		
2.3-4	R Values for Inhalation - Child		
2.3-5	R Values for Inhalation - Infant		
2.3-6	R Values for Ground		
2.3-7	R Values for Vegetation - Adult		
2.3-8	R Values for Vegetation - Teen		
2.3-9	R Values for Vegetation - Child		
2.3-10	R Values for Meat - Adult		
2.3-11	R Values for Meat - Teen		
2.3-12	R Values for Meat - Child		
2.3-13	R Values for Cow Milk - Adult		•
2.3-14	R Values for Cow Milk - Teen		

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2.3-15	R Values for Cow Milk - Child		•	
2.3-16	R Values for Cow Milk - Infant			
2.3-17	R Values for Goat Milk - Adult			
2.3-18	R Values for Goat Milk - Teen			
2.3-19	R Values for Goat Milk - Child	••• •		
2.3-20	R Values for Goat Milk - Infant	· .		
CONTIN	NUOUS RELEASE DEPOSITION PARAMETERS (0-5 N	<u>/liles)Included ir</u>	Procedure 1/2-ODC-2.02	
2.3-21	BV-1 And 2 Process Vent (Elevated Release)			
2.3-22	BV-1 And 2 Containment Vents (Ground Release)		<i>.</i>	
2.3-23	BV-1 And 2 Ventilation Vents (Ground Release)			
2.3-24	BV-1 And 2 Turbine Building Vents (Ground Release)			
2.3-25	BV-2 Condensate Polishing Building (Ground Release)			
2.3-26	BV-2 Decontamination Building Vent (Ground Release)			
2.3-27	BV-2 Waste Gas Storage Vault Vent (Ground Release)			
CONTIN Procedur	UOUS RELEASE DEPOSITION PARAMETERS (SP <u>e 1/2-ODC-2.02</u>	ECIAL DIST	ANCES) Included in	
2.3-28	BV-1 And 2 Process Vent (Elevated Release)			
2.3-29	BV-1 And 2 Containment Vents (Ground Release)			
2.3-30	BV-1 And 2 Ventilation Vents (Ground Release)			
2.3-31	BV-1 And 2 Turbine Building Vents (Ground Release)			
2.3-32	BV-2 Condensate Polishing Building (Ground Release)			
2.3-33	BV-2 Decontamination Building Vent (Ground Release)			
2224	RV-2 Waste Gas Storage Vault Vent (Ground Release)			

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	ATTACHMENT A Page 4 of 6 LIST OF ODCM TABLES							
BATCH R ODC-2.02	RELEASE DISPERSION PARAMETERS (Special Distances	s) Included	in Procedure 1/2-					
2.3-35	BV-1 And 2 Containment Vents (Ground Release)							
2.3-36	BV-1 And 2 Ventilation Vents (Ground Release)							
2.3-37	BV-1 And 2 Process Vent (Elevated Release)							
BATCHR	ELEASE DISPERSION PARAMETERS (0-5 Miles) Include	ed in Proce	dure 1/2-ODC-2.02					
2.3-38	BV-1 And 2 Process Vent (Elevated Release)							
ENVIRON	MENTAL MONITORING Included in Procedure 1/2-ODC-	2.03						
3.0-1	Radiological Environmental Monitoring Program							
DISPERS	ION CALCULATION Included in Procedure 1/2-ODC-3.01							
A:1	BV-1 And 2 Release Conditions							
INPUTS 1	TO COMPUTER CODES Included in Procedure 1/2-ODC-3.	<u>01</u>						
B:1a	Inputs To GALE Code For Generation Of BV-1 Liquid Sou	irce Term N	Mixes					
B:1b	Inputs To SWEC LIQ1BB Code For Generation Of BV-2 L	iquid Sour	ce Term Mixes					
B:2a	Inputs To SWEC GAS1BB Code For Generation Of BV-1	Gaseous So	ource Term Mixes					
B:2b	Inputs To SWEC GAS1BB Code For Generation of BV-2 G	Gaseous So	urce Term Mixes					
ODCM CO	ONTROLS Included in Procedure 1/2-ODC-3.03							
C:1.1	Operational Modes							
C:1.2	Frequency Notation							
C:3.3-6	Radiation Monitoring Instrumentation		· .					
C:4.3-3	Radiation Monitoring Instrumentation Surveillance Requirer	ments						
C:3.3-12	Radioactive Liquid Effluent Monitoring Instrumentation							
C:4.3-12	Radioactive Liquid Effluent Monitoring Instrumentation Sur	veillance R	equirements					
C:3.3-13	Radioactive Gaseous Effluent Monitoring Instrumentation							

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C:4.3-13	Radioactive Gaseous Effluent Monitoring Instrumentatio	on Surveilland	ce Requirements
C:4.11-1	Radioactive Liquid Waste Sampling And Analysis Progra	am	
C:4.11-2	Radioactive Gaseous Waste Sampling And Analysis Prog	gram	
C:3.12-1	Radiological Environmental Monitoring Program	• •	
C:3.12-2	Reporting Levels For Radioactivity Concentrations In Er	ivironmental	Samples
C:4.12-1	Maximum Values For The Lower Limits Of Detection (L	.LD)	
FORMAT	FOR ANNUAL REPORT Included in Procedure 1/2-ODC	<u>C-3.03</u>	
E:6.9-1	Environmental Radiological Monitoring Program Summa	ury	
ODCM CO	ONTROLS PROCEDURE MATRIX Included in Procedur	e 1/2-ODC-1	<u>1.01</u>
F:1a	BV-1 Radiation Monitoring Instrumentation Surveillance	•	
F:1b	BV-2 Radiation Monitoring Instrumentation Surveillance	;	
F:2a	BV-1 Liquid Effluent Monitor Surveillances		
F:2b	BV-2 Liquid Effluent Monitor Surveillances		
F:3a	BV-1 Gaseous Effluent Monitor Surveillances		
F:3b	BV-2 Gaseous Effluent Monitor Surveillances		
F:4	BV-1 and 2 Liquid Effluent Concentration Surveillances		
F:5	BV-1 and 2 Liquid Effluent Dose Surveillances		
F:6	BV-1 and 2 Liquid Effluent Treatment Surveillances		
F:7	BV-1 and 2 Liquid Storage Tank Activity Limit Surveilla	nces	v
F:8	BV-1 and 2 Gaseous Effluent Dose Surveillances		· ·
F:9	BV-1 and 2 Gaseous Effluent Air Dose Surveillances		
F:10	BV-1 and 2 Gaseous Effluent Particulate and Iodine Dose	e Surveillanc	es
F:11	BV-1 and 2 Gaseous Effluent Treatment Surveillances	•	

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	LIST OF ODCM TABLES		
F:12a	BV-1 Gaseous Storage Tank Activity Limit Surveillances		. · · ·
F:12a	BV-2 Gaseous Storage Tank Activity Limit Surveillances		
F 13	BV-1 and 2 Total Dose Surveillances		
F:14	BV-1 and 2 REMP Surveillances		· .
F:15	BV-1 and 2 Land Use Census Surveillances		
F:16	BV-1 and 2 Interlaboratory Comparison Program	-	

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LIQUID	EFFLUENTS Included in Procedure 1/2-ODC-2.01		
1.4-1	BV-1 Liquid Radwaste System		
1.4-2	BV-2 Liquid Radwaste System		
1.4-3	BV-1 and 2 Liquid Effluent Release Points		
5-1	Site Boundary For Liquid Effluents		
GASEOU	S EFFLUENTS Included in Procedure 1/2-ODC-2.02		
2.4-1	BV-1 and 2 Gaseous Radwaste System		
2.4-2	BV-1 and 2 Gaseous Effluent Release Points		
5-1	Site Boundary For Gaseous Effluents		
RADIOLO ODC-2.03	OGICAL ENVIRONMENTAL MONITORING PROGRAM	1 Included i	n Procedure 1/2-
3.0-1	Air Sampling Locations		
3.0-2	TLD Locations		
3.0-3	Shoreline Sediment, Surface Water, And Drinking Water	Sampling Lo	ocations
3.0-4	Milk Sampling Locations		
3.0-5	Foodcrop Sampling Locations		
3.0-6	Fish Sampling Locations		

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	ODCM CONTRO	IS PROCEDURE MAT	TRIX	
	ODEM CONTROL		ICI/X	
	BV-1 RADIATION MONITOR	ING INSTRUMENTION SUR	VEILLANCE	S
TABLE F: 1a				
1/2-ODC-3.03	<u>Attachment D Control 3.3.3.1</u> : Maintain	Radiation Monitoring Channel	els in Table 3	.3-6 OPERABLE
APPLICABILI	<u>Y</u> : MODES 1 thru 4			
	DESCRIPTION	1		
1331	Test Monitors at Table 4 3-3		KOCEDUKE	
4.0.0.1	Frequency			
4.3.3.1.1	Noble Gas Effluent Monitors -	NOTE: Actions for INOP	ERABLE Mo	nitors are
	SPINGS	documented in the Operations & Rad Effluent Shift Logs.		
4.3.3.1.1.a	Supplementary Leak Collection and	1MSP-43.59-I: Channel Ca	libration	
	Release System	Form 1/2-ADM-1611.F03: Channel Check or		
	(RM-1VS-110 CH7 & CH9)	Form 1/2-ADM-0606.F01: Channel Check		
		10ST-43.07: Channel Ope	rational Test	*****
4.3.3.1.1.b	Auxiliary Building Ventilation System	1MSP-43.60-I: Channel Ca	libration	
	(RM-1VS-109 CH7 & CH9)	Form 1/2-ADM-1611.F03: Channel Check or		
		Form 1/2-ADM-0606.F01: Channel Check		
40044-		1051-43.07: Channel Ope	rational lest	
4.3.3.1.1.C	Process Vent System (RIVI-1GVV-109	Earm 1/2 ADM 1611 502		k or
		FUTIL 1/2-ADW-1011.FU3: 0		
		10ST-43.07: Chappel One	rational Test	~ n
13312	Noble Gas Steam Effluent	NOTE: Actions for INOP		nitors are
7.3.3.1.2	Monitors	documented in the Opera	tions & Rad	Effluent Shift Logs
	Atmospheric Steam Dump Valve and	1MSP-43 62-1 RM-1MS-10	0A Channel (Calibration
433120	4.3.3.1.2.ci Atmospheric Steam Dump Valve and IMSP-43.62-I: RM-IMS-100A C			
4.3.3.1.2.ci v 1.2a	Code Safety Valve Discharge	1MSP-43.63-I: RM-1MS-100B Channel Calibration		
4.3.3.1.2.ci v.1.2a	Code Safety Valve Discharge (RM-1MS-100A, B, C)	1MSP-43.63-I: RM-1MS-10 1MSP-43.64-I: RM-1MS-10	0C Channel (Calibration
4.3.3.1.2.ci v.1.2a	Code Safety Valve Discharge (RM-1MS-100A, B, C)	1MSP-43.63-1: RM-1MS-10 1MSP-43.64-1: RM-1MS-10 Form 1/2-ADM-1611 F03: (0C Channel (Channel Chec	Calibration k or
4.3.3.1.2.ci v.1.2a	Code Safety Valve Discharge (RM-1MS-100A, B, C)	1MSP-43.63-I: RM-1MS-10 1MSP-43.64-I: RM-1MS-10 Form 1/2-ADM-1611.F03: (Form 1/2-ADM-0606.F01: (0C Channel (Channel Chec Channel Chec	Calibration :k or :k
4.3.3.1.2.ci v.1.2a	Code Safety Valve Discharge (RM-1MS-100A, B, C)	1MSP-43.63-I: RM-1MS-10 1MSP-43.64-I: RM-1MS-10 Form 1/2-ADM-1611.F03: (Form 1/2-ADM-0606.F01: (1OST-43.05: Channel Ope	0C Channel (Channel Chec Channel Chec rational Test	Calibration sk or sk
4.3.3.1.2.ci v.1.2a	Code Safety Valve Discharge (RM-1MS-100A, B, C)	1MSP-43.63-I: RM-1MS-10 1MSP-43.64-I: RM-1MS-10 Form 1/2-ADM-1611.F03; (Form 1/2-ADM-0606.F01; (1OST-43.05; Channel Ope 1MSP-43.65-I: Channel Ca	0C Channel Chec Channel Chec Channel Chec rational Test libration	Calibration k or k
4.3.3.1.2.ci v.1.2a 4.3.3.1.2.b	Code Safety Valve Discharge (RM-1MS-100A, B, C) Auxiliary Feedwater Pump Turbine Exhaust (RM-1MS-101)	1MSP-43.63-I: RM-1MS-10 1MSP-43.64-I: RM-1MS-10 Form 1/2-ADM-1611.F03: (Form 1/2-ADM-0606.F01: (1OST-43.05: Channel Ope 1MSP-43.65-I: Channel Ca Form 1/2-ADM-1611.F03: (IDC Channel (Channel Chec Channel Chec rational Test libration Channel Chec	Calibration k or k
4.3.3.1.2.ci v.1.2a 4.3.3.1.2.b	Code Safety Valve Discharge (RM-1MS-100A, B, C) Auxiliary Feedwater Pump Turbine Exhaust (RM-1MS-101)	1MSP-43.63-I: RM-1MS-10 1MSP-43.64-I: RM-1MS-10 Form 1/2-ADM-1611.F03: (Form 1/2-ADM-0606.F01: (1OST-43.05: Channel Ope 1MSP-43.65-I: Channel Ca Form 1/2-ADM-1611.F03: (Form 1/2-ADM-0606.F01: (IDC Channel (Channel Chec Channel Chec rational Test libration Channel Chec Channel Chec	Calibration k or k .k k or k

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<u>1/2-ODC-3.03</u>, Attachment D Control 3.3.3.1: Maintain Radiation Monitoring Channels in Table 3.3-6 OPERABLE APPLICABILITY: MODES 1 thru 4

ODCM SR	DESCRIPTION	PROCEDURE
4.3.3.1	Test Monitors at Table 4.3-3 Frequency	
4.3.3.1.1	Noble Gas Effluent Monitors	NOTE: Actions for INOPERABLE Monitors are documented in the Operations & Rad Effluent Shift Logs.
4.3.3.1.2. c.i.1.1.a	Supplementary Leak Collection and Release System (2HVS-RQ109C & D)	2MSP-43.33-I: Channel Calibration Form 1/2-ADM-1611.F04: Channel Check or Form 1/2-ADM-0606.F02: Channel Check 2OST-43.08: Channel Operational Test

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	ODCM CONTRO	LS PROCEDURE M	ATRIX	
TABLE E: 2a	BV-1 LIQUID EFFLU	ENT MONITOR SURVEIL	LANCES	
1/2-ODC-3.03	Attachment E Control 3.3.3.9: Maintain	Liquid Effluent Monitors in	n Table 3.3-12 (OPERABLE
APPLICABILI	<u>TY</u> : During Releases Through The Flow F	Path		
ODCM SR	DESCRIPTION		PROCEDURE	
4.3.3.9	Test Monitors at Table 4.3-12 Frequency			
4.3.3.9.1	Monitors Providing Alarm and Automatic Termination	NOTE: Actions for INOPE Operations & Rad Effluent	RABLE monitors t Shift Logs.	are documented in the
4.3.3.9.1.a	Liquid Radwaste Effluent Line	1MSP-43.18-I: Channel Cali	bration	
1	(RM-1LW-104)	Form 1/2-ENV-05.04.F01: S	ource Check	
1		10ST-43.09: Channel Operation	ational Test	
		Form 1/2-ADM-1611.F03: C	hannel Check or	
13391b	Liquid Waste Contaminated Drain Line	Form 1/2-ADM-0606.F01: C	hannel Check	
4.0.0.0.1.0	(RM-1LW-116)	Form 1/2-ENV-05.04.F01: S	ource Check	,
		1/20M-17.4A.D: Source Ch	eck	
		Form 1/2-ADM-1611 E03: C	ational Test hannel Check or	
		Form 1/2-ADM-0606.F01: C	hannel Check	•
4.3.3.9.1.c	Auxiliary Feed Pump Bay Drain Monitor	1MSP-43.70-I: Channel Cali	bration	
	(RM-TDA-TOO)	10ST-43.09: Channel Opera	neck ational Test	
	· · · · · · · · · · · · · · · · · · ·	Form 1/2-ADM-1611.F03: C	hannel Check or	
13392	Monitors Providing Alarm, but Not	Form 1/2-ADM-0606.F01: C	hannel Check	are documented in the
4.0.0.0.2	Prividing Auto Termination	Operations & Rad Effluen	t Shift Logs.	
4.3.3.9.2.a	Component Cooling - Recirculation Spray	1MSP-43.10-I: Channel Cali	bration	
	(RM-1RW-100)	10ST-43.09: Channel Opera 10ST-43.09A: Source Chec	k	
		Form 1/2-ADM-1611.F03: C	hannel Check or	
13393	Elow Rate Measurement, Devices	Form 1/2-ADM-0606.F01: C	hannel Check	are documented in the
4.0.0.0.0	The measurement Devices	Operations & Rad Effluent	Shift Logs and 1	I/2-ENV-05.04
4.3.3.9.3a,b	Liquid Radwaste Effluent Lines	1MSP-17.05-I: Channel Cali	bration (3b)	(2-)
	3b: (FR-1LW-104 for RM-1LW-104)	1MSP-17.06-I: F-LW-104-1 1MSP-17.07-I: F-LW-104-2	Channel Calibratio	on (3a) on (3a)
		1MSP-17.08-I: F-LW-104-1	Channel Operation	nal Test (3a)
		1MSP-17.09-I: F-LW-104-2	Channel Operational	nal Test (3a) LTest (3b)
		Form 1/2-ADM-1611.F03: CI	hannel Check or	Trest (OD)
42702-	Cooling Tower Disudawa Line	Form 1/2-ADM-0606.F01: CI	hannel Check	
4.3.3.9.3.0	(FT-1CW-101)	1MSP-31.04-I: F-CW-101 C	hannel Calibration	Test
	(FT-1CW-101-1)	1MSP-31.06-I: F-CW-101-1	Channel Calibratic	n
		1MSP-31.07-I: F-CW-101-1 10M-54.315 Log: FT-CM-1	Channel Operation	nal Test
		10M-54.3 L5 Log: FT-CW-1	01-1 Channel Che	ck
4.3.3.9.4	Tank Level Indicating Devices	NOTE: Actions for INOPE	RABLE monitors	are documented in the
433942	Primary Water Storage Tank	1MSP-8 01-11 L-PG1154 Ch	annel Operational	Test
	(LI-1PG-115A for 1BR-TK-6A)	1MSP-8.03-I: L-PG115A Ch	annel Calibration	
10004		10M-54.3 L5 Log: Channel C	Check (When Add	ing to Tank)
4.3.3.9.4.D	(LI-1PG-115B for 1BR-TK-6B)	1MSP-8.02-I: L-PG-115B Ch 1MSP-8.04-I: L-PG-115B Ch	annel Operational	lest
l 		10M-54.3 L5 Log: Channel C	Check (When Addi	ng to Tank)
13394c	Steam Generator Drain Tank	1MSP-17.01-I: L-LW110 Cha	annel Operational	Test
4.0.0.0.4.0	/11 11 M/ 110 for 41 M/ TV 70)	1MCD 17 02 1.1 114/440 01	nnal Calibration	

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4.3.3.9.4.d	Steam Generator Drain Tank	1MSP-17.02-I: L-LW111 Char	nel Operational	Test	
	(LI-1LW-111 for 1LW-TK-7B)	1MSP-17.04-I: L-LW111 Char 10M-54 3 15 Log: Channel Ch	nel Calibration	ing to Tank)	
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	BV-2 LIQUID EFFLU	JENT MONITOR SURVEIL	LANCES	,
TABLE F: 2b	•			
1/2-ODC-3.03 APPLICABILIT	<u>, Attachment E Control 3.3.3.9</u> : Maintair [Y]: During Releases Through The Flow	n Liquid Effluent Monitors ir Paths	n Table 3.3-12 C	PERABLE
ODCM SR	DESCRIPTION		PROCEDURE	
4.3.3.9	Test Monitors at Table 4.3-12 Frequency			
4.3.3.9.1	Monitors Providing Alarm and Automatic Termination	NOTE: Actions for INOPERABLE monitors are documented in the Operations & Rad Effluent Shift Logs.		
4.3.3.9.1.a	Liquid Waste Process Effluent	Form 1/2-ADM-1611.F04: Channel Check or		
	Monitor	Form 1/2-ADM-0606.F02: Channel Check		
	(28GC-RQ100)	Form 1/2-ENV-05,04.FU	Collibration	κ
		1/20M 17 4A C: Source	Check	
		20M-25.4.1 : Source Ch	eck	
		20M-25.4 N. Source Ch	eck	
		20ST-43.03: Channel C	perational Test	
4.3.3.9.2	Flow Rate Measurement Devices	NOTE: Actions for INC	DPERABLE mo	nitors are
		documented in the Op	erations & Rad	Effluent Shift Logs
		and 1/2-ENV-05.04		_
4.3.3.9.2.a	Liquid Radwaste Effluent	2MSP-25.01-I: 2SGC-P:	26A, B Channel	Calibration
	(2SGC-FIS100)	2MSP-25.01-I: 2SGC-P:	26A, B Channel	Operational Test
		2MSP-43.39-I: Channel	Calibration	
		Form 1/2-ADM-1611.F0	4: Channel Che	ck or
		Form 1/2-ADM-0606.F0	2: Channel Che	ck
4.3.3.9.2.b	Cooling Tower Blowdown Line	2MSP-31.04-I: Channel	Calibration	
	(2CWS-FT101)	2MSP-31.05-I: Channel	Operational Tes	st
		Form 1/2-ADM-1611.F0	4: Channel Che	ck or
		Form 1/2-ADM-0606.F0	2. Unannei Che	СК
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4.3.3.10.2.b

4.3.3.10.2.c

Particulate & lodine Sampler

System Effluent Flow Rate

Pri: (FR-1VS-101) Alt: (RM-1VS-109 Ch 10)

Measuring Device

Pri: Filter Paper and Charcoal

Cartridge for (RM-1VS-109) Alt: Filter Paper and Charcoal Cartridge for (RM-1VS-111)

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TABLE F: 3a <u>1/2-ODC-3.03, /</u> APPLICABILITY	Attachment F Control 3.3.3.10: Maintain : During Releases Through The Flow F	n Gaseous Effluent Moni Paths	tors in Table 3.3-	13 OPERABLE
ODCM SR	DESCRIPTION	1	PROCEDURE	
4.3.3.10	Test Monitors at Table 4.3-13 Frequency		· · · · · ·	
4.3.3.10.1	Gaseous Waste / Process Vent System	NOTE: Actions for INOPERABLE monitors are documented in the Operations & Rad Effluent Shift Logs		
433101a	Noble Gas Activity Monitor	and 1/2-ENV-05.05	al Calibration	
4.0.0.10.1.4	Pri: (RM-1GW-108B)	10M-19.4.E, H: Chanr	nel Check (Batch	Release)
	Alt: (RM-1GW-109 Ch 5): for	10M-19.4.E, H: Sourc	e Check	
	continuous releases only, not	1/2-OM-19.4A.D: Sour	ce Check	
	an alternate for batch releases	1/2-OM-19.4A.D. Char 10ST 43.00: Channel	nel Check (Batci Operational Test	n Release)
		Form 1/2-ADM-1611.F	03: Channel Che	ck or
		Form 1/2-ADM-0606.F	01: Channel Che	ck
4.3.3.10.1.b	Particulate & Iodine Sampler	Form 1/2-ADM-1611.F	03: Channel Che	ck or
	Pri: Filter Paper and Charcoal	Form 1/2-ADM-0606.F	01: Channel Che	ck
	Cartridge for (RM-1GW-109)			
	Cartridge for (RM-1GW-110)			
4.3.3.10.1.c	System Effluent Flow Rate	1MSP-19.05-I: Channe	el Operational Tes	st
	Measuring Device	1MSP-19.06-I: Channe	el Calibration	
	Pri: (FR-1GW-108)	Form 1/2-ADM-1611.F	03: Channel Che	ck or
	Alt: (RM-1GW-109 Ch 10)	Form 1/2-ADM-0606.F	01: Channel Che	ck
4.3.3.10.1.d	Sampler Flow Rate Measuring	1MSP-43.21-I: Channe	el Calibration	untion of Test
	Pri: (RM-1GW-109 Ch 15)	Form 1/2-ENV-01.04.F	01. Channel Ope	erational rest
	Alt: (Rotometer: FM-1GW-101	Form 1/2-ADM-0606.F	01: Channel Che	ck
	and			
	Vacuum Gauge: PI-1GW-135 for RM-1GW-110)			
4.3.3.10.2	Auxiliary Building Ventilation	NOTE: Actions for IN	IOPERABLE mo	nitors are
	System (ventilation vent)	and 1/2-ENV-05.05	perations & Rad	Effluent Shift Logs
4.3.3.10.2.a	Noble Gas Activity Monitor	1MSP-43.13-I: Channe	Calibration	
1	Pri: (RM-7VS-101B)	1051-43.07A: RM-1VS	5-109 Channel O	perational Lest
		1001-45.09: Unannel	Operational Test	
			L.neck	

Form 1/2-ADM-0606.F01: Channel Check

Form 1/2-ADM-0606.F01: Channel Check

1MSP-44.07-I: Channel Operational Test

Form 1/2-ADM-1611.F03: Channel Check or Form 1/2-ADM-0606.F01: Channel Check

1MSP-44.08-I: Channel Calibration

Form 1/2-ADM-1611.F03: Channel Check or

Itle: Unit: 1/2 DDCM: Index, Matrix and History of ODCM Changes ATTACHMENT C Page 7 of 21 ODCM CONTROLS PROCEDURE MATRIX BV-1 GASEOUS EFFLUENT MONITOR SURVEILLANCES Continued TABLE F: 3a 1/2-ODC-3.03, Attachment F Control 3.3.3.10; Maintain Gaseous Effluent Monitors in Table 3.3 APPLICABILITY: During Releases Through The Flow Paths ODCM SR DESCRIPTION PROCEDURI 1MSP-44.07-I; Channel Functional Te 1MSP-44.08-I; Channel Calibration Priz (RM-1VS-109 Ch 15) Alt: (Rotometer: FM-1VS-102 and Vacuum Gauge: PI-1VS-659 for RM-1VS-111) MSP-44.07-I; Channel Calibration Priz (RM-1VS-110) 4.3.3.10.3 Rx Containment / SLCRS (Elevated Release) 1MSP-44.07-I; Channel Calibration 1MSP-44.08-I; Channel Calibration Priz (RM-1VS-110) 4.3.3.10.3.a Noble Gas Activity Monitor Pri: (RM-1VS-107B) Alt: (RM-1VS-107B) Alt: (RM-1VS-110 Ch 5) 1MSP-43.20-I; Channel Calibration 10ST-43.09A: Source Check Form 1/2-ADM-0606.F01: Channel Ch Form 1/2-	Level Of Use: General Skill Referen
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BV-1 GASEOUS EFFLUENT MONITOR SURVEILLANCES Continued Continued TABLE F: 3a 1/2-ODC-3.03, Attachment F Control 3.3.3.10: Maintain Gaseous Effluent Monitors in Table 3.3 APPLICABILITY: During Releases Through The Flow Paths ODCM SR DESCRIPTION PROCEDURR ODCM SR DESCRIPTION PROCEDURR A DESCRIPTION PROCEDURR ODCM SR DESCRIPTION PROCEDURR A Sampler Flow Rate Measuring Device PROCEDUR PROCEDUR A DESCRIPTION PROCEDUR A DESCRIPTION PROCEDUR A DESCRIPTION PROCEDUR MODE: Mage: Device MSP-44.08-I: Channel Calibration Masset Measuring Device <t< td=""><td></td></t<>	
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Form 1/2-ADM-1611.F03: Channel Ch Form 1/2-ADM-0606.F01: Channel Ch Form 1/2-ADM-0606.F01: Channel Ch Pri: Filter Paper and Charcoal Cartridge for (RM-1VS-110) Alt: Filter Paper and Charcoal Cartridge for (RM-1VS-112)Form 1/2-ADM-0606.F01: Channel Ch Form 1/2-ADM-0606.F01: Channel Ch Pri: Channel Ch Cartridge for (RM-1VS-112)4.3.3.10.3.cSystem Effluent Flow Rate Pri: (FR-1VS-112)1MSP-44.09-I: Channel Calibration 1MSP-44.10-I: Channel Operational Te Form 1/2-ADM-0606.F01: Channel Ch Channel Ch Pri: (FR-1VS-112)4.3.3.10.3.dSampler Flow Rate Measuring Device1MSP-43.19-I: Channel Calibration Form 1/2-ADM-0606.F01: Channel Ch Pri: Channel Ch Form 1/2-ADM-0606.F01: Channel Ch Pri: Channel Ch Pri: (FR-1VS-110 Ch 10)	
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4.3.3.10.3.c System Effluent Flow Rate 1MSP-44.09-I: Channel Calibration Measuring Device 1MSP-44.10-I: Channel Operational Te Pri: (FR-1VS-112) Form 1/2-ADM-1611.F03: Channel Ch Alt: (RM-1VS-110 Ch 10) Form 1/2-ADM-0606.F01: Channel Ch 4.3.3.10.3.d Sampler Flow Rate Measuring 1MSP-43.19-I: Channel Calibration Device Form 1/2-RNV-01.04.F01; Channel Operation	
4.3.3.10.3.d Sampler Flow Rate Measuring 1MSP-44.10-I: Channel Operational Te 4.3.3.10.3.d Sampler Flow Rate Measuring 1MSP-43.19-I: Channel Calibration	<u> </u>
Pri: (FR-1VS-112) Form 1/2-ADM-1611.F03: Channel Ch Alt: (RM-1VS-110 Ch 10) Form 1/2-ADM-0606.F01: Channel Ch 4.3.3.10.3.d Sampler Flow Rate Measuring 1MSP-43.19-I: Channel Calibration Device Form 1/2-ENV-01.04.F01; Channel Op	it
Alt: (RM-1VS-110 Ch 10) Form 1/2-ADM-0606.F01: Channel Ch 4.3.3.10.3.d Sampler Flow Rate Measuring 1MSP-43.19-I: Channel Calibration Device Form 1/2-ENV-01.04.F01: Channel Op	sk or
4.3.3.10.3.d Sampler Flow Rate Measuring TMSP-43.19-I: Channel Calibration Device Form 1/2-ENV-01.04.F01: Channel Op	<u></u>
	rational Test
Pri: (RM-1VS-110 Ch 15) Form 1/2-ADM-1611.F03: Channel Ch	sk or
Alt: (Rotometer: FM-1VS-103 and Form 1/2-ADM-0606.F01: Channel Ch	:k
Vacuum Gauge: PI-1VS-660 for RM-1VS-112)	

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Beaver Valley Power		Station	1/2-ODC-1.01	
itle:			Unit: 1/2	Level Of Use: General Skill Refer
DCM: Inde	x, Matrix and History of ODCM	Changes	Revision:	Page Number:
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	AI	Page 8 of 21		•
	ODCM CONTRO	OLS PROCEDURE MAT	RIX	,
	BV-2 GASEOUS EFFI	Continued	ANCES	
1/2-ODC-3.03,	Attachment F Control 3.3.3.10: Mainta	in Gaseous Effluent Monitors i	n Table 3.3-	13 OPERABLE
APPLICABILIT	: During Releases Through The Flow	Paths		
ODCM SR	DESCRIPTION	PR	OCEDURE	
4.3.3.10	Test Monitors at Table 4.3-13			· · · · · · · · · · · · · · · · · · ·
4.3.3.10.1	SLCRS Unfiltered Pathway	NOTE: Actions for INOPER	RABLE mon	itors are documented
	(Ventilation Vent)	in the Operations & Rad Ef	fluent Shift	Logs and 1/2-ENV-
4.3.3.10.1.a	Noble Gas Activity Monitor	2MSP-43.36-I: Channel Calib	oration	
	Pri: (2HVS-RQ101B)	20ST-43.09: Channel Opera	tional Test	
		Form 1/2-ADM-1611.F04: Ch	iannei Checi iannel Checi	¢ or ¢
		2-ENV-05.23: Source Check	(DRMS Auto	Function)
4.3.3.10.1.b	Particulate & lodine Sampler Pri: Filter Paper and Charcoal	Form 1/2-ADM-1611.F04: Ch Form 1/2-ADM-0606.F02: Ch	annel Checl	< or <
	Cartridge for (2HVS-RQ101A)			
4.3.3.10.1.c	Process Flow Rate Monitor Pri: (Monitor Item 29 for 2HVS-	2MSP-43.36-I: Channel Calib 2MSP-43.36A-I: Channel Ope	eration erational Tes	st
	VP101)	Work Request: Channel Calil	pration (Velo	city Probe)
		Form 1/2-ADM-1611.F04: Ch Form 1/2-ADM-0606.F02: Ch	annel Check annel Check	cor c
4.3.3.10.1.d	Sampler Flow Rate Monitor	2MSP-43.36-I: Channel Calib	ration	
	Pfl. (2HVS-F11101-1)	Form 1/2-ADM-1611.F04: Ch	annel Check	st (or
4.2.2.40.0		Form 1/2-ADM-0606.F02: Ch	annel Check	(
4.3.3.10.2	(Elevated Release)	in the Operations & Rad Eff	ABLE mon	tors are documented Logs and 1/2-ENV-
		05.05		
4.3.3.10.2.a	Pri: (2HVS-RQ109B)	2MSP-43.32-I: 2HVS-RQ109/ 2MSP-43.33-I: 2HVS-RQ109/	A Channel C B.C.D Chani	alibration
		2OST-43.08: Channel Operat	ional Test	
		Form 1/2-ADM-1611.F04: Ch Form 1/2-ADM-0606.F02: Ch	annel Check annel Check	c or c
4004001	D. K. M. D. L. Kan Damaka	2-ENV-05.23: Source Check	DRMS Auto	Function)
4.3.3.10.2.b	Particulate & lodine Sampler Pri: Filter Paper and Charcoal	Form 1/2-ADM-1611.F04: Ch Form 1/2-ADM-0606.F02: Ch	annel Check annel Check	(or (
4.2.2.42.0 -	Cartridge for (2HVS-RQ109A)	0M0D 42 204 1 01		A
4.3.3.10.2.0	Process Flow Rate Monitor Pri: (Monitor Item 29 for 2HVS-	21/15P-43.32A-1: Channel Ope 2MSP-43.33-1: 2HVS-RQ1091	erational Les 3,C,D, Chan	nel Calibration
	FR22)	Form 1/2-ADM-1611.F04: Ch	annel Check	or
	2 nd Alt: (2HVS-F122A and F122C) 2 nd Alt: (2HVS-F122B and F122D)	FUTT 1/2-ADIVI-0606.FU2: Ch	annei Check	· .
4.3.3.10.2.d	Sampler Flow Rate Monitor	2MSP-43.32-I: 2HVS-RQ109/	A Channel C	alibration
	2HVS-DAU109A)	2MSP-43.32A-I: Channel Ope 2MSP-43.33-I: 2HVS-RQ109	3,C,D, Chan	nel Calibration
	,	Form 1/2-ADM-1611.F04: Ch	annel Check	or
		Form 1/2-ADM-0606.F02: Ch	annei Check	

Beaver Valley Power Station			1/2-ODC-1.01	
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	v Matrix and Iliston - form	(Changes	1/2 Revision:	Page Number:
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	ODCM CONTR	OLS PROCEDURE MA	TRIX	
-	BV-2 GASEOUS EFI	FLUENT MONITOR SURVEIL Continued	LANCES	
TABLE F: 3b 1/2-ODC-3.03, APPLICABILITY	Attachment F Control 3.3.3.10: Maint : During Releases Through The Flow	ain Gaseous Effluent Monitor / Paths	s in Table 3.3-	13 OPERABLE
ODCM SR	DESCRIPTION	PROCEDURE		
4.3.3.10.3	Decontamination Building Vent	NOTE: Actions for INOPERABLE monitors are documente in the Operations & Rad Effluent Shift Logs and 1/2-ENV- 05 05		
4.3.3.10.3.a	Noble Gas Activity Monitor Pri: (2RMQ-RQ301B)	2MSP-43.35-I: Channel Calibration 2OST-43.09: Channel Operational Test 2-ENV-05.23: Source Check (DRMS Auto Function) Form 1/2-ADM-1611.F04: Channel Check or Form 1/2-ADM-0606 E02: Channel Check		
4.3.3.10.3.b	Particulate & lodine Sampler Pri: Filter Paper and Charcoal Cartridge for (2RMQ- RQ301A)	Form 1/2-ADM-1611.F04: Channel Check or Form 1/2-ADM-0606.F02: Channel Check		
4.3.3.10.3.d	Sampler Flow Rate Monitor Pri: (2RMQ-FIT301-1)	2MSP-43.35-I: Channel Calibration 2MSP-43.35A-I: Channel Operational Test Form 1/2-ADM-1611.F04: Channel Check or Form 1/2-ADM-0606 E02: Channel Check		
4.3.3.10.4	Condensate Polishing Building Vent	NOTE: Actions for INOPERABLE monitors are documented in the Operations & Rad Effluent Shift Logs and 1/2-ENV- 05.05		
4.3.3.10.4.a	Noble Gas Activity Monitor Pri: (2HVL-RQ112B)	2MSP-43.38-I: Channel Calibration 2OST 2.43.09: Channel Operational Test Form 1/2-ADM-1611.F04: Channel Check or Form 1/2-ADM-0606.F02: Channel Check 2-ENV-05.23: Source Check (DRMS Auto Function)		
4.3.3.10.4.b	Particulate & lodine Sampler Pri: Filter Paper and Charcoal Cartridge for (2HVL-RQ112A)	Form 1/2-ADM-1611:F04: Channel Check or Form 1/2-ADM-0606.F02: Channel Check		
4.3.3.10.4.d	Sampler Flow Rate Monitor Pri: (2HVL-FIT112-1)	2MSP-43.38-I: Channel Calibration 2MSP-43.38A-I: Channel Operational Test Form 1/2-ADM-0606.F02: Channel Check		
4.3.3.10.5	Waste Gas Storage Vault Vent	NOTE: Actions for INOPERABLE monitors are documented in the Operations & Rad Effluent Shift Logs and 1/2-ENV- 05.05		
4.3.3.10.5.a	Noble Gas Activity Monitor Pri: (2RMQ-RQ303B)	2MSP-43.37-I: Channel Calibration 2OST-43.09: Channel Operational Test Form 1/2-ADM-1611.F04: Channel Check or Form 1/2-ADM-0606.F02: Channel Check 2-ENV-05.23: Source Check (DRMS Auto Function)		
4.3.3.10.5.b	Particulate & lodine Sampler Pri: Filter Paper and Charcoal Cartridge for (2RMQ- RQ303A)	Form 1/2-ADM-1611.F04: Channel Check or Form 1/2-ADM-0606.F02: Channel Check		
4.3.3.10.5.d	Sampler Flow Rate Monitor Pri: (2RMQ-FIT303-1)	2MSP-43.37-I: Channel Calibration 2MSP-43.37A-I Channel Operational Test Form 1/2-ADM-1611.F04: Channel Check or Form 1/2-ADM-0606.F02: Channel Check		
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	ODCM CONTRO	OLS PROCEDURE MA	ATRIX			
	BV-1 AND 2 LIQUID EFFLU	ENT CONCENTRATION SU	JRVEILLANCE	S		
TABLE F: 4 1/2-ODC-3.03 APPLICABILITY	Attachment G Control 3.11.1.1: Mainta Y: At All Times	ain Effluent Concentration wi	ithin 10 Times	10CFR20 EC's		
4.11.1.1.1.A	Batch Waste Release Tanks:	CHM CP 3: Sampling and	Testing			
	Sample and Analyze Radioactive	CHM CP 5: Radiochemica	I Procedures			
		CHM CP 9: Conduct of Or	ns (Analysis) peration			
		Form 1/2-ADM-1611.F03	& F04: LW Tar	k Sampling, or		
		Form 1/2-ADM-0606.F01	& F02: LW Tar I W Tank Sam	ik Sampling Ind		
		Form 1/2-ENV-05.11.F02:	Rad Monitor S	Sampling		
A 11 1 4 4 D	Continuous Releases:	1/2-ENV-05.25: Sample A	nalysis Matrix			
4.11.1.1.1.5	Sample and Analyze Radioactive	CHM CP 5: Sampling and CHM CP 5: Radiochemica	l Procedures			
	Liquid Wastes per Table 4.11-1	CHM CP 8: Logs and Forn	ns (Analysis)			
		CHM CP 9: Conduct of Op	eration & E04 [,] I W Tar	k Sampling or		
		Form 1/2-ADM-0606.F01	& F02: LW Tar	ik Sampling		
		Form 1/2-ENV-05.01.F01:	LW Tank Sam	npling		
		1/2-ENV-05.25: Sample A	nalysis Matrix	sampling		
4.11.1.1.2	Use ODCM Methodology to	Form 1/2-ENV-05.04.F01:	RWDA-L			
4.11.1.1.3	Take Turbine Building Grab	CHM CP 3: Sampling and	Testing			
	Sample When BV-1 Primary to	CHM CP 5: Leak Rate Cal	culations			
	gpm (142 gpd)	Form 1/2-ADM-1611 F03 8	ns (Analysis) & F04 [.] Sump S	ampling or		
	3F() - 3F	Form 1/2-ADM-0606.F01 &	& F02: Sump S	ampling		
		Form 1/2-ENV-05.01.F01:	LW Tank Sam	pling		
		Form 1/2-ENV-05.04.F01:	RWDA-L)		
		Form 1/2-ENV-05.11.F02:	Rad Monitor S	ampling		
4 11 1 1 4	Obtain Turbine Building Grab	1/2-ENV-05.25: Sample Ai CHM CP 3: Sampling and	nalysis Matrix			
	Sample When BV-2 Primary to	CHM CP 5: Leak Rate Cal	culations			
	Secondary Leakage Exceeds 0.1	CHM CP 8: Logs and Form	ns (Analysis)	ompling or		
	gpm (142 gpd)	Form 1/2-ADM-0606.F01 &	& F04: Sump S & F02: Sump S	ampling		
		Form 1/2-ENV-05.01.F01:	LW Tank Sam	pling		
		Form 1/2-HPP-3.06.005.F0 Form 1/2-ENV-05.04 F01	UT: RWDA-L, C RWDA-L	r		
		Form 1/2-ENV-05.11.F02:	Rad Monitor S	ampling		
111115	Obtain Grab Samples Prior to PV	1/2-ENV-05.25: Sample Ar	nalysis Matrix	ampling or		
4. I I. I. I.J.	2 Recirculation Drain Pump	Form 1/2-ADM-0606.F01 8	x F04. Sump S & F02: Sump S	ampling, or ampling		
•	Discharge to Catch Basin No. 16	Form 1/2-ENV-05.01.F01:	LW Tank Sam	pling		
		20M-9.2: Rx Plant Vents a	ind Drains (CB np Casing / Pit	-16)		
		20M 51: OM Clearance 51	-86 (2DAS-P2	15A/B)		
	1	1/2-ENV-05.25: Sample Ar	nalysis Matrix			

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	Beaver Valley Powe	er Station	Procedure Na	umber: 1/2-ODC-1.01
Title:	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	Unit:	Level Of Use:
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	ODCM CONT	POIS DROCEDIDE M	ATDIV	
	ODCM CONT	KOLS FROCEDURE M	AINA	
	BV-1 AND 2 LIQU	ID EFFLUENT DOSE SURVE	ILLANCES	
1/2-ODC-3.03 APPLICABIL	3 <u>, Attachment H Control 3.11.1.2</u> : Liq I <u>TY</u> : At All Times	uid Effluent Dose		
1/2-ODC-3.03 APPLICABIL	3, Attachment H Control 3.11.1.2: Liqu ITY: At All Times	uid Effluent Dose		
1/2-ODC-3.0: APPLICABILI ODCM SR	3. Attachment H Control 3.11.1.2: Liqu ITY: At All Times DESCRIPTION	uid Effluent Dose	PROCEDURE	
1/2-ODC-3.0: APPLICABIL ODCM SR 4.11.1.2.	3. Attachment H Control 3.11.1.2: Liquer (17): At All Times DESCRIPTION Using the ODCM - Determine Cumulative Dose From Liquid	uid Effluent Dose	PROCEDURE F01: RWDA-L, (pr
1/2-ODC-3.0: APPLICABIL ODCM SR 4.11.1.2. 1	3. Attachment H Control 3.11.1.2: Liquer TY: At All Times DESCRIPTION Using the ODCM - Determine Cumulative Dose From Liquid Effluents Every 31 Days	uid Effluent Dose Form 1/2-HPP-3.06.005. Form 1/2-ENV-05.04.F0 SAP Order (Issue NPD3)	PROCEDURE F01: RWDA-L, (1: RWDA-L NRE Letter: Mon	or thly Dose Projection)

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	Beaver Valley Power Station			nber: /2-ODC-1.01
Title:			Unit:	Level Of Use: General Skill Reference
ODCM: Ind	ex, Matrix and History of ODCM	Changes	Revision:	Page Number:
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	I	Page 12 of 21		
	ODCM CONTRO	OLS PROCEDURE MATI	RIX	
	BV-1 AND 2 LIQUID EFF	LUENT TREATMENT SURVEI	LLANCES	
TABLE F: 6				
1/2-ODC-3.03 APPLICABILI	6. Attachment Control 3.11.1.3: Liquid E TY: At All Times	Effluent Treatment System		
ODCM SP	DESCRIPTION			
4.11.1.3.	Using the ODCM - Project the Liquid	Form 1/2-HPP-3.06.005.F01:	RWDA-L, or	
1	Release Dose Every 31 Days	Form 1/2-ENV-05.04.F01: RV SAP Order (Issue NPD3NRE	VDA-L Letter: Montl	nly Dose Projection)
	L	1/20M-17.4A.D: RWDA-L		
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	Beaver Valley Power	Station	Procedure Nu	$\frac{1}{2-0} DC - 1 01$
l'itle:			Unit: 1/2	Level Of Use: General Skill Referen
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	AT F ODCM CONTRO BV-1 AND 2 LIQUID STORAGE	TACHMENT C Page 13 of 21 DLS PROCEDURE M TANK ACTIVITY L	1ATRIX IMIT SURVEI	LLANCES
TABLE F: 7 1/2-ODC-3.03	3, Attachment J Control 3.11.1.4: Mainta	in Liquid Tank Activity wit	hin the following	limits:
18 Curies in 7 Curies in 7 Curies in 6 Curies in 62 Curies in 62 Curies in 10 Curies in APPLICABILI	1BR-TK-6B ILW-TK-7A ILW-TK-7B IQS-TK-1 2QSS-TK21 Unit 1 and Unit 2 miscellaneous tempor <u>TY</u> : At All Times	ary outside radioactive liq	uid storage tanks	
	DESCRIPTION		PROCEDURE	<u></u>
4.11.1.4.	Every 7 days Analyze a tank sample when radioactive material is added to tanks except the RWST's. For RWST's, analyze sample within 7 days of reactor cavity drain down back to the RWST.	Form 1/2-ENV-05.01.FC Form 1/2-HPP-3.06.005 Form 1/2-ENV-05.04.FC 1/2-ENV-05.25: Sample 1OM-8.4.Z: Recirculate 1OM-77.4.AJ: LW Trans 1OM-54.3 L5 Log Item 1OM-54.3 L5 Log Item 1OM-54.3 L5 Log Item 2OM-17.4B: LW to SG	3: Activity Deterr F01: RWDA-L, o 11: RWDA-L Analysis Matrix Test Tanks Thru sfer to 1LW-TK-7, 197: 132: 134: 200: Blowdown Tank	nination or Ion Exchanger A&B

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P	anver Valley Power	Station	Procedure Nu	mber:		
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	ODCM CONTROL	LS PROCEDURE MAT	RIX			
	BV-1 AND 2 GASEOUS	EFFLUENT DOSE SURVEIL	ANCES			
TABLE F: 8 1/2-ODC-3.03, Att APPLICABILITY: /	tachment K Control 3.11.2.1: Gaseou: At All Times	s Effluent Dose Rates				
ODCM SP	DESCRIPTION					
4.11.2.1.1	Using the ODCM - Determine the	Form 1/2-HPP-3.06.006.F01: R	WDA-G, or			
	Noble Gas Effluent Dose Rate	Form 1/2-ENV-05.05.F01: RWD	A-G	Bormit		
		Form 1/2-HPP-3.06.012.F01: At	normal Gaseo	ous Releases, or		
		Form 1/2-ENV-05.06.F01: Abno	rmal Gaseous	Releases		
		1/20M-19.4A.B. RWDA-G for U	nit 2 GWST's			
4.11.2.1.2	Sample and Analyze per Table	4.11-2 to Determine Inh	alation Pat	thway Dose		
4.11.2.1.2.A	Grab Sample Each Tank	CHM CP 3: Sampling and Testir CHM CP 5: Radiochemical Proc	ng edures	1		
		CHM CP 8: Logs and Forms (Ar	alysis)			
		Form 1/2-ADM-1611.F03 & F04	GW Tank Sa	mpling, or		
		Form 1/2-ADM-0606.F01 & F02	GW Tank Sa	mpling		
		Form 1/2-ENV-05.02.F01: GVV Tank Sampling Form 1/2-HPP-3.06.006.F01: RWDA-G, or				
	Form 1/2-ENV-05.05.F01: RWDA-G					
		1/2-ENV-05.25: Sample Analysis	Monitor Sampli Matrix	ng		
4.11.2.1.2.B	Containment Purge -	CHM CP 3: Sampling and Testir	ig oduros			
	Grab Sample Each Purge	CHM CP 8: Logs and Forms (Ar	alysis)			
		CHM CP 9: Conduct of Operatio	n GW Tank Sai	mpling or		
		Form 1/2-ADM-0606.F01 & F02:	GW Tank Sai	mpling		
	1	Form 1/2-ENV-05.05.F01: RWD	A-G Sample Reco	rd		
		Form 1/2-ENV-05.11.F01: Rad N	fonitor Samplin	ng		
4412120	Ventilation Custome	1/2-ENV-05.25: Sample Analysis	Matrix			
4.11.2.1.2.0	BV-1 Grab and Continuous	CHM CP 3: Sampling and Testin	a	*********************************		
thru	Samples	CHM CP 5: Radiochemical Proc	edures			
4.11.2.1.C.3		CHM CP 8: Logs and Forms (An CHM CP 9: Conduct of Operatio	alysis) n			
and 4 11 2 1 2 D 1		Form 1/2-ADM-1611.F03 & F04;	GW Tank Sar	mpling, or		
thru		Form 1/2-ADM-0606.F01 & F02: Form 1/2-ENV-01.03.F01: Contin	GW Tank Sar wous Release	npling . Permit		
4.11.2.1.2.D.3		Form 1/2-ENV-05.11.F01: Rad N	ionitor Samplir	ng		
		Form 1/2-HPP-4.02.017.F01-90: Form 1/2-ENV-05.24.Fxx: RMS (RMS & DRMS & DRMS Valve	S Valve Verification, or Verification		
		1-HPP-5.01.001: SA-9/10 Emerg	ency Operatio	n		
		1-HPP-5.01.002: SPING-4 Emer 1/2-ENV-05 25: Sample Analysis	gency Operatio Matrix	on		
4.11.2.1.2.C.4	BV-2 Grab and Continuous	CHM CP 3: Sampling and Testin	9			
thru	Samples	CHM CP 5: Radiochemical Proce CHM CP 8: Logs and Forms (An	edures alvsis)			
and 4. 11.2.1.2.C.8		CHM CP 9: Conduct of Operation))			
4.11.2.1.2.D.4		Form 1/2-ADM-1611.F03 & F04: Form 1/2-ADM-0606 F01 & F02	GW Tank San GW Tank San	npling, or noling		
thru		Form 1/2-ENV-01.03.F01: Contir	uous Release	Permit		
4.11.2.1.2.D.8		Form 1/2-ENV-05.11.F01: Rad M	Ionitor Samplin	ng S Valve Verification or		
		Form 1/2-ENV-05.24.F01-90: RN	IS & DRMS Va	alve Verification		
		2-HPP-5.04.001: Emergency Op 1/2-ENV-05 25: Sample Applycic	eration of WR0	GM Assembly		
	I	TZ-ENV-05.25. Sample Analysis	Wattix	I		

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ODCM CO	NTROLS PROC	CEDURE MA	TRIX	·	
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	ODCM CONT	ROLS PROCEDURE	MATRIX		
	BV-1 AND 2 GASEOUS	S EFFLUENT AIR DOSE S	SURVEILLANCES		
TABLE F: 9 1/2-ODC-3.03, APPLICABILIT	<u>Attachment L Control 3.11.2.2</u> : Gas <u>Y</u> : At All Times	eous Effluent Air Doses			
ODCM	DESCRIPTION		PROCEDURE		
4.11.2.2.	Using the ODCM - Determine the	Form 1/2-HPP-3.06.006	F01: RWDA-G, or		
1	Noble Gas Cumulative Dose Contributions Every 31 Days	Form 1/2-ENV-05.05.F0	1: RWDA-G	ase Permit	
	Contraction Every of Days	Form 1/2-HPP-3.06.012	.F01: Abnormal Ga	seous Releases, or	
		Form 1/2-ENV-05.06.F0	1: Abnormal Gased	ous Releases	
		SAP Order (Issue NPD3	NRE Letter: Month	ly Dose Projection)	
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	ODCM CONTRO	DLS PROCEDURE MA	FRIX	•
	BV-1 AND 2 GASEOUS EFFLUENT P	ARTICULATE AND IODINE	DOSE SURVI	EILLANCES
TABLE F: 10	1			
1/2-ODC-3.0	3. Attachment M Control 3.11.2.3: Gased	ous Effluent Particulate And Ic	odine Doses	
APPLICABIL	<u>ITY</u> : At All Times			
ODCM	DESCRIPTION	P	ROCEDURE	
SR	Liens the ODCM Determine the			
4.11.2.3. 1	Particulate & Radioiodine	Form 1/2-ENV-05.05.F01: 1	RWDA-G,	01
•	Cumulative Dose Contributions	Form 1/2-ENV-01.03.F01: (Continuous Re	elease Permit
	Every 31 Days	Form 1/2-HPP-3.06.012.F0	1: Abnormal (Gaseous Releases, or
		Form 1/2-ENV-05.06.F01: /	Abnormal Gas	seous Releases
		SAP Order (Issue NPD3NR	E Letter: Mon	thiv Dose Projection)
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		ODCM CONTRO	OLS PROCEDUR	RE MATRIX	r •		
	B\/_1 /				ANCES		
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TABLE F: 11							
	3, Attachment N Co	<u>ntrol 3.11.2.4</u> : Gaseo	us Effluent Treatmer	nt System			
	<u>III</u> . ALAII IIIIES			· · · ·		•	
ODCM	DESC	RIPTION	· ·	PROCE	DURE	······································	
SR							
4.11.2.4. 1	Using the ODCM	- Project the Gas	Form 1/2-HPP-3.0	05.006.F01: RV	VDA-G, o NG	r	
1	Davs	In the one Every 31	Form 1/2-ENV-05.	.03.F01: KVVD/ .03.F01: Contin	v-G Nuous Rel	ease Permit	
			Form 1/2-HPP-3.0	6.012.F01: Ab	normal G	aseous Rele	ases, or
	. *		Form 1/2-ENV-05.	06.F01: Abnor	mal Gase	ous Release	S
			1 SAP Order (Issue	INPUSINE Let		ily Dose Pro	jection)
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	Reaver Valley Power	Station	Procedure Nu	mber:
Title	Deaver valley I ower			1/2-ODC-1.01
1 110.	÷		1/2	General Skill Refer
ODCM: Inc	lex, Matrix and History of ODCM	1 Changes	Revision:	Page Number: 82 of 84
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	ODCM CONTROL	OLS PROCEDURE N	IATRIX	
	BV-1 GASEOUS STORAGI	E TANK ACTIVITY LIMIT	SURVEILLANCE	S
TABLE F: 12 1/2-ODC-3.03	a 3. Attachment O Control 3.11.2.5: Maint	ain Gas Storage Tank Act	ivity within the foll	owing limits:
1GW-TK-1A: 1GW-TK-1B: 1GW-TK-1B:	<52000 Curies Noble Gas (Considered <52000 Curies Noble Gas (Considered <52000 Curies Noble Gas (Considered)	Xe-133) Xe-133) Xe-133)		
APPLICABILI	<u>TY</u> : At All Times		•	
ODCM	DESCRIPTION		PROCEDURE	
4.11.2.5. 1	Determine Tank Gas Contents when Adding Rad Material & (RCS Activity >100uCi/ml)	Form 1/2-ENV-05.02.F 10M-19.4.G: GW Disp 1/2-ENV-05.25: Sample	01: GW Tank Sar osal System e Analysis Matrix	npling
L	1			
	BV-2 GASEOUS STORAGE	E TANK ACTIVITY LIMIT	SURVEILLANCE	5
	b			
1/2-ODC-3.03	8. Attachment O Control 3.11.2.5: Mainta	ain Gas Storage Tank Acti	vity with the follow	ving limit:
2GWS-TK254	، http://www.action.curies.Noble Gas.((Considered Xe-133) in any	connected aroun	of Gas Storage Tanks
2000 11(20)			connected group	of our otorage raine
APPLICABILI	<u>TY</u> : At All Times			
ODCM SR	DESCRIPTION		PROCEDURE	··· ··· ··· ··· ··· ··· ··· ··· ··· ··
4.11.2.5.	Determine Gaseous Waste Tank	Form 1/2-ENV-05.02.F0	01: GW Tank Sam	pling
	Material to the Tank.	20M-19.2C GW Precau	er from Unit 2	
		2OM-54.3 L5 Log Item	133	
	· · · · · · · · · · · · · · · · · · ·	1/2-ENV-05.25: Sample	Analysis Matrix	
L	I			

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	BV-1 AND 2 TO	TAL DOSE SURVEILLANCE	s	
			•	
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TABLE F: 13	3 Attachment P Control 3 11 4 1: Liquid	And Gaseous Doses		
TABLE F: 13 1/2-ODC-3.03 APPLICABILI	3. Attachment P Control 3.11.4.1: Liquid TY: At All Times	And Gaseous Doses		
TABLE F: 13 1/2-ODC-3.03 APPLICABILI	3, Attachment P Control 3.11.4.1: Liquid TY: At All Times	And Gaseous Doses		
TABLE F: 13 1/2-ODC-3.03 APPLICABILI	3. Attachment P Control 3.11.4.1: Liquid TY: At All Times DESCRIPTION	And Gaseous Doses	OCEDURE	
TABLE F: 13 1/2-ODC-3.03 APPLICABILI ODCM SR	3. Attachment P Control 3.11.4.1: Liquid TY: At All Times DESCRIPTION	And Gaseous Doses	OCEDURE	
TABLE F: 13 1/2-ODC-3.03 APPLICABILI ODCM SR 4.11.4.1.	3. Attachment P Control 3.11.4.1: Liquid TY: At All Times DESCRIPTION Using the ODCM - Determine	And Gaseous Doses PR Form 1/2-ENV-01.05.F01: A	OCEDURE	Report (40CFR190)
TABLE F: 13 1/2-ODC-3.03 APPLICABILI ODCM SR 4.11.4.1. 1	3. <u>Attachment P Control 3.11.4.1</u> : Liquid <u>TY</u> : At All Times DESCRIPTION Using the ODCM - Determine Cumulative Gas & Liquid Dose per	And Gaseous Doses PR Form 1/2-ENV-01.05.F01: A Form 1/2-HPP-3.06.005.F01	OCEDURE nnual RETS F : RWDA-L, or	Report (40CFR190)
ODCM SR 4.11.4.1. 1	3. Attachment P Control 3.11.4.1: Liquid TY: At All Times DESCRIPTION Using the ODCM - Determine Cumulative Gas & Liquid Dose per Control 3.11.1.2, 3.11.2.2, 3.11.2.3	And Gaseous Doses PR Form 1/2-ENV-01.05.F01: At Form 1/2-HPP-3.06.005.F01 Form 1/2-ENV-05.04.F01: R	OCEDURE nnual RETS F : RWDA-L, or WDA-L	Report (40CFR190)
ODCM SR 4.11.4.1. 1	3. Attachment P Control 3.11.4.1: Liquid TY: At All Times DESCRIPTION Using the ODCM - Determine Cumulative Gas & Liquid Dose per Control 3.11.1.2, 3.11.2.2, 3.11.2.3	And Gaseous Doses PR Form 1/2-ENV-01.05.F01: At Form 1/2-HPP-3.06.005.F01 Form 1/2-ENV-05.04.F01: R' Form 1/2-HPP-3.06.006.F01	OCEDURE nnual RETS F : RWDA-L, or WDA-L : RWDA-G, o	Report (40CFR190)
TABLE F: 13 1/2-ODC-3.03 APPLICABILI ODCM SR 4.11.4.1. 1	3. Attachment P Control 3.11.4.1: Liquid TY: At All Times DESCRIPTION Using the ODCM - Determine Cumulative Gas & Liquid Dose per Control 3.11.1.2, 3.11.2.2, 3.11.2.3	And Gaseous Doses PR Form 1/2-ENV-01.05.F01: A Form 1/2-HPP-3.06.005.F01 Form 1/2-ENV-05.04.F01: R Form 1/2-HPP-3.06.006.F01 Form 1/2-ENV-05.05.F01: R	OCEDURE nnual RETS F : RWDA-L, or WDA-L : RWDA-G, o WDA-G	Report (40CFR190)
TABLE F: 13 1/2-ODC-3.03 APPLICABILI ODCM SR 4.11.4.1. 1	3. Attachment P Control 3.11.4.1: Liquid TY: At All Times DESCRIPTION Using the ODCM - Determine Cumulative Gas & Liquid Dose per Control 3.11.1.2, 3.11.2.2, 3.11.2.3	And Gaseous Doses PR Form 1/2-ENV-01.05.F01: Ai Form 1/2-HPP-3.06.005.F01 Form 1/2-ENV-05.04.F01: R Form 1/2-HPP-3.06.006.F01 Form 1/2-ENV-05.05.F01: R Form 1/2-ENV-01.03.F01: C	OCEDURE nnual RETS F : RWDA-L, or WDA-L : RWDA-G, o WDA-G ontinuous Rel	Report (40CFR190) r Ir lease Permit
ODCM SR 4.11.4.1. 1	3. Attachment P Control 3.11.4.1: Liquid TY: At All Times DESCRIPTION Using the ODCM - Determine Cumulative Gas & Liquid Dose per Control 3.11.1.2, 3.11.2.2, 3.11.2.3	And Gaseous Doses PR Form 1/2-ENV-01.05.F01: A Form 1/2-HPP-3.06.005.F01 Form 1/2-ENV-05.04.F01: R Form 1/2-HPP-3.06.006.F01 Form 1/2-ENV-05.05.F01: R Form 1/2-ENV-01.03.F01: C Form 1/2-HPP-3.06.012.F01	OCEDURE nnual RETS F : RWDA-L, or WDA-L : RWDA-G, o WDA-G ontinuous Rel : Abnormal G	Report (40CFR190) nr lease Permit leaseous Releases, or
ODCM SR 4.11.4.1. 1	3. Attachment P Control 3.11.4.1: Liquid TY: At All Times DESCRIPTION Using the ODCM - Determine Cumulative Gas & Liquid Dose per Control 3.11.1.2, 3.11.2.2, 3.11.2.3	And Gaseous Doses PR Form 1/2-ENV-01.05.F01: A Form 1/2-HPP-3.06.005.F01 Form 1/2-HPP-3.06.006.F01 Form 1/2-HPP-3.06.006.F01 Form 1/2-ENV-05.05.F01: R Form 1/2-ENV-01.03.F01: C Form 1/2-HPP-3.06.012.F01 Form 1/2-ENV-05.06.F01: A	OCEDURE nnual RETS F : RWDA-L, or WDA-L : RWDA-G, o WDA-G ontinuous Rel : Abnormal Gase	Report (40CFR190) or lease Permit leaseous Releases, or eous Releases

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APPLICABIL	<u>ITY</u> : At All Times		toning i rogram (r			
ODCM	DESCRIPTION		PROCEDURE			
SR						
4.12.1.1	Using Locations in the ODCM -Collect and Analyze Samples per Tables	1/2-ENV-02.01: Descr 1/2-ENV-03.01: Enviro	iption of overall R onmental Samplir	REMP		
	3.12-1, 3.12-2 & 4.12-1			·ə		
		2				
				:		
ODCM `SR	DESCRIPTION		PROCEDURE			
4.12.2.1	Using the Best Available Method - Conduct a Land Use Census Yearly	1/2-ENV-02.01: Descri 1/2-ENV-04.02: Comp	iption of overall R liance to ODCM (EMP Control 3.12.2 Action a		
	Between 6/1 & 10/1	and b				
TABLE F: 16	3					
<u>1/2-ODC-3.0</u> APPLICABIL	 <u>Attachment S Control 3.12.3</u>: Interlabor ITY: At All Times 	ratory Comparison Progra	am			
ODCM SR	DESCRIPTION		PROCEDURE			
4.12.3.1	Include Analysis Results of the	1/2-ENV-02.01: Descript	tion of overall REI	MP		
	interlaboratory Comparison Program in the Annual Radiological					
	Environmental Report					

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Beaver Valley Power Station

Unit 1/2

1/2-ODC-2.01

ODCM: LIQUID EFFLUENTS

Document Owner Manager, Nuclear Environmental and Chemistry

Revision Number	7
Level Of Use	General Skill Reference
Safety Related Procedure	Yes
Effective Date	05/30/09

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1.0 <u>PURPO</u>	<u>SE</u>		· · · · · · · · · · · · · · · · · · ·
1.1 This pro followin Unit 1/2	cedure provides the calculational methodology to be us g release parameters as denoted in [CTS] the Administ Technical Specifications [ITS] T.S. 5.5.2. ^(3.2.1)	ed for deter rative Contr	rmination of the rols Section of the
1.1.1 Liqu [IT	uid effluent monitor alarm setpoints ([CTS] Technical S S] T.S. 5.5.2.a)	Specification	n 6.8.6.a, Item 1
1.1.2 Liqu Iten	uid effluent release concentration calculations ([CTS] T n 2 [ITS] T.S. 5.5.2.b)	echnical Sp	pecification 6.8.6.a,
1.1.3 Liqu Spe	uid effluent dose projection and cumulative dose calcula cification 6.8.6.a, Items 4 and 5[ITS] T.S. 5.5.2.d and 7	tions ([CT T.S. 5.5.2.e	S] Technical
1.2 This pro	cedure also provides information related to the followir	ng:	
1.2.1 Liqu T.S	uid Radwaste Treatment System ([CTS] Technical Spectra 5.5.2.f)	cification 6.	8.6.a, Item 6 [ITS]
1.2.2 Site	Boundary used for liquid effluents		
1.3 Prior to	issuance of this procedure, these items were contained i	in Section 1	of the old ODCM.
2.0 <u>SCOPE</u>			
2.1 This pro describe	cedure is applicable to all station personnel that are qua d and referenced in this procedure.	lified to per	form activities as
3.0 <u>REFER</u>	ENCES AND COMMITMENTS		
3.1 <u>Reference</u>	<u>ces</u>		
3.1.1 Refe	erences For BV-1 Liquid Effluent Monitor Setpoints		
.3.1.1.1	Beaver Valley Power Station, Appendix I Analysis - I 412; Table 2.1-3	Docket No.	50-334 and 50-
3.1.1.2	Beaver Valley Power Station, Appendix I Analysis - I 412; Table 2.1-2	Docket No.	50-334 and 50-
3.1.1.3	10 CFR 20, Appendix B, (20.1001-20.2402) Table 2,	Column 2	EC's
3.1.1.4	Calculation Package No. ERS-SFL-92-039, Isotopic Process Monitors	Efficiencies	For Unit 1 Liquid
3.1.1.5	Calculation Package No. ERS-ATL-93-021, Process Effluent Monitors	Alarm Setp	oints For Liquid

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3.1.1.6	Stone and Webster Calculation Package No. UR(B)- Releases and Concentrations - Expect and Design Cas	60, BVPS ses (per Ur	Liquid Radwaste nit and Site)
3.1.2 Refe	erences for BV-2 Liquid Effluent Monitor Setpoints		
3,1.2.1	10 CFR 20, Appendix B, (20.1001-20.2402) Table 2,	Column 2	EC's
3.1.2.2	Calculation Package No. ERS-SFL-86-026, Unit 2 D	RMS Isoto	pic Efficiencies
3.1.2.3	Stone and Webster Computer Code LIQ1BB; "Norm: Pressurized Water Reactor"	al Liquid R	eleases From A
3.1.2.4	Calculation Package No. ERS-JWW-87-015, Isotopic RQ100	Efficienci	es For 2SGC-
3.1.2.4	1 The Isotopic Efficiencies for 2SGC-RQ100 are presented in Calculation Package No. ERS-SFL	supercedeo 86-026.	d by the values
3.1.2.5	Calculation Package No. ERS-WFW-87-021, Conver	sion Factor	r for 2SGC-RQ100
3.1.2.5	.1 The Monitor Conversion Factor (CF ₁₁) for 2SG the value presented in Calculation Package No.	C-RQ100 ERS-ATL	is superceded by -93-021
3.1.2.6	Calculation Package No. ERS-ATL-93-021, Process A Effluent Monitors	Alarm Setp	ooints For Liquid
3.1.2.7	Stone and Webster Calculation Package No. UR(B)-1 Releases and Concentrations - Expect and Design Cas	60, BVPS es (per Un	Liquid Radwaste it and Site)
3.1.3 Refe	erences used for Other Portions of this procedure		
3.1.3.1	NUREG-0133, Preparation of Radiological Effluent T Nuclear Power Plants	echnical S	pecifications for
3.1.3.2	NUREG-1301, Offsite Dose Calculation Manual Guid Effluent Controls for Pressurized Water Reactors (Ger Supplement No. 1)	ance: Star neric Lette	ndard Radiological r 89-01,
3.1.3.3	NUREG-0017; Calculation of Releases of Radioactive Liquid Effluents from PWR's, Revision 0	Materials	in Gaseous and
3.1.3.4	Regulatory Guide 1.113; Estimating Aquatic Dispersic Accidental and Routine Reactor Releases for the Purpe Appendix I, April 1977	on of Efflue ose of Imp	ents from lementing
3.1.3.5	Regulatory Guide 1.109, Calculation of Annual Doses Releases of Reactor Effluents for the Purpose of Evalu Part 50, Appendix I	to Man fro ating Com	om Routine pliance to 10CFR

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3.1.3.6	Calculation Package No. ERS-ATL-83-027; Liqu for HPM-RP 6.5, Issue 3 and Later	uid Waste Dos	e Factor Calculation
3.1.3.7	NUREG-0172; Age-Specific Radiation Dose Con Chronic Intake	mmitment Fact	tors for a One-Year
3.1.3.8	UCRL-50564, Concentration Factors of Chemica Organisms, Revision 1, 1972	al Elements in I	Edible Aquatic
3.1.3.9	1/2-ADM-1640, Control of the Offsite Dose Cald	culation Manua	al
3.1.3.10	1/2-ADM-0100, Procedure Writers Guide		
3.1.3.11	NOP-SS-3001, Procedure Review and Approval		
3.1.3.12	1/2-ODC-3.03, ODCM: Controls for RETS and	REMP Progra	ums
3.1.3.13	CR 02-06174, Tracking of Activities for Unit 1 R Implementation. CA-014, Revise ODCM Proceed and 1b) to include the addition of Zn-65 to the O	RCS Zinc Addi lure 1/2-ODC- DCM liquid so	tion 2.01 (Tables 1.1-1a purce term.
3.1.3.14	CR 03-02466, RFA-Radiation Protection Effluen Recommendation on Processing when Performing 7A/7B]. CA-02, Revise ODCM Procedure 1/2-0 show the liquid waste flow path cross-connect be	t Control Prov g Weekly Samj DC-2.01, (Att tween Unit 1 a	ide ple of [1LW-TK- tachment D) to and Unit 2.
3.1.3.15	CR 05-03306, Incorporated Improved Technical	Specifications	(ITS).
3.1.3.16	CR 05-03854, ODCM Figure for Liquid Effluent CA-01, revise ODCM procedure 1/2-ODC-2.01 (Attachment D, Figure 1.4-3 to incorporate a mod No. 8700-RM-27F.	Release Points (ODCM: Liqu lified version o	s Need Updated. id Effluents) f Plant Drawing
3.1.3.17	Unit 1 Technical Specification Amendment No. 2 DPR-66. This amendment to the Unit 1 license w July 19, 2006.	75 (LAR 1A-3 vas approved b	02) to License No. y the NRC on
3.1.3.18	Vendor Calculation Package No. 8700-UR(B)-22 Containment Conversion, Power Uprate, and Alte Alarm Setpoints for the Radiation Monitors at Ur	23, Impact of A ernative Source nit 1.	atmospheric e Terms on the
3.1.3.19	Engineering Change Package No. ECP-04-0440,	Extended Pow	ver Uprate.
3.1.3.20	CR 06-04908, Radiation Monitor Alarm Setpoint ODCM procedure 1/2-ODC-2.01 to update the al and [RM-1DA-100] for incorporation of the Exte Amendment No. 275.	Discrepancies larm setpoints nded Power U	CA-03; revise of [RM-1RW-100] prate per Unit 1 TS
	· · · · · · · · · · · · · · · · · · ·		

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3.1.3.21 CR 06-6476, Procedure 1/2-ODC-2.01 needs revised for Plant Uprate. CA-01; revise ODCM procedure 1/2-ODC-2.01 to update the alarm setpoints of [2SWS-RQ101] for incorporation of the Extended Power Update at Unit 2 (ECP-04-0441) per Unit 2 TS Amendment No. 156

3.2 <u>Commitments</u>

3.2.1 [CTS] Unit 1/2 Technical Specification 6.8.6.a

[ITS] T.S. 5.5.2

4.0 <u>RECORDS AND FORMS</u>

4.1 Records

4.1.1 Any calculation supporting ODCM changes shall be documented, as appropriate, by a retrievable document (e.g., letter or calculation package) with an appropriate RTL number.

4.2 Forms

4.2.1 None

5.0 PRECAUTIONS AND LIMITATIONS

- 5.1 BV-1 and BV-2 utilize the concept of a shared liquid radioactive waste system according to NUREG 0133.^(3.1.3.1) This permits the mixing of liquid radwaste for processing and allocating of dose due to release as defined in Section 8.4.
 - 5.1.1 In Section 8.1 of this procedure, effluent monitor setpoints for a conservative mix are based on the individual Units' specific parameters, but effluent monitor setpoints for analysis prior to release permit use of the total dilution flow available at the site.
- 5.2 There is a difference in alarm setpoint terminology presentations for the radiation monitoring systems of BV-1 and BV-2.
 - 5.2.1 Where HIGH and HIGH-HIGH terminology are used for BV-1 monitors, Alert and High terminology is used for BV-2 monitors.
 - 5.2.2 BV-2 setpoints are presented in uCi/ml rather than cpm as in BV-1. This difference is due to BV-2 software which applies a conversion factor to the raw data (cpm). Note that the uCi/ml presentation is technically correct only for the specific isotopic mix used in the determination of the conversion factors. Therefore, BV-2 setpoints determined on analysis prior to release will be correct for properly controlling dose rate, but the indicated uCi/ml value may differ from the actual value.

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- 5.3 This procedure also contains information that was previously contained in Section 5 of the previous BV-1 and 2 Offsite Dose Calculation Manual.
 - 5.3.1 In regards to this, the site boundary for liquid effluents was included in this procedure.
 - 5.3.2 The Site Boundary for Liquid Effluents is shown in ATTACHMENT E Figure 5-1.
- 5.4 This procedure includes Improved Technical Specifications (**[ITS]**) information that is NOT applicable to current Technical Specifications (**[CTS]**) and **[CTS]** information that is NOT applicable in **[ITS]**. The **[CTS]** information shall be used prior to the **[ITS]** effective date. The **[ITS]** information shall be used on or after the **[ITS]** effective date.

6.0 ACCEPTANCE CRITERIA

- 6.1 All changes to this procedure shall contain sufficient justification that the change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR 50, and not adversely impact the accuracy or reliability of effluent dose or alarm setpoint calculation.^(3.1.3.2)
 - 6.1.1 All changes to this procedure shall be prepared in accordance with 1/2-ADM-0100^(3.1.3.10) and 1/2-ADM-1640.^(3.1.3.9)
 - 6.1.2 All changes to this procedure shall be reviewed and approved in accordance with NOP-SS-3001^(3.1.3.11) and 1/2-ADM-1640.^(3.1.3.9)

7.0 PREREQUISITES

7.1 The user of this procedure shall be familiar with ODCM structure and format.

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8.0 **PROCEDURE**

8.1 Alarm Setpoints

8.1.1 BV-1 Monitor Alarm Setpoint Determination

This procedure determines the monitor HIGH-HIGH Alarm Setpoint that indicates if the concentration of radionuclides in the liquid effluent released from the site to unrestricted areas exceeds 10 times the EC's specified in 10 CFR 20, Appendix B (20.1001-20.2402), Table 2, Column 2 for radionuclides other than dissolved or entrained noble gases or exceeds a concentration of 2E-4 uCi/ml for dissolved or entrained noble gases. ^(3.1.1.5)

The methodology described in Section 8.1.1.2 is an alternative method to be used to determine the (RM-1LW-104 or RM-1LW-116) monitor HIGH-HIGH Alarm Setpoint (HHSP). The methodology in Section 8.1.1.2 may be used for any batch release and shall be used when the respective total gamma activity concentration of the liquid effluent prior to dilution exceeds 3.14E-3 uCi/ml and 7.33E-3 uCi/ml. This concentration is equivalent to the respective HHSP's derived in Section 8.1.1.1 and allows for respective tritium concentrations up to 4.26E+0 uCi/ml and 9.94E+0 uCi/ml.^(3.1.1.5)

8.1.1.1 BV-1 Setpoint Determination Based On A Conservative Mix

The Alarm Setpoints for the liquid monitors shall be set at the values listed in the following table:

BV-1 L	IQUID MONITO	R SETPOI	NTS	
			cpm Above	Background
	Monitor	CR	HHSP	HSP
Liquid Waste Effluent Monitor	RM-1LW-104	3.53E+5	\leq 3.53E+5	≤ 2.47E+5
Laundry And Contaminated	RM-1LW-116	8.24E+5	≤ 8.24E+5	≤ 5.77E+5
Shower Drains Monitor				
Component Cooling/	RM-1RW-100	2.57E+4	\leq 2.09E+4	≤ 1.46E+4
Recirculation Spray Hx River				
Water Monitor				
Component Cooling Hx River	RM-1RW-101	9.02E+3	≤ 9.02E+3	≤ 6.32E+3
Water Monitor				
Aux Feed Pump Bay Drain	RM-1DA-100	1.22E+4	$\leq 1.20E+4$	≤ 8.43E+3
Monitor				

The setpoints for RM-1LW-104 and RM-1LW-116 are based on the following conditions. The setpoint bases for all monitors can be found in Calculation Package ERS-ATL-93-021 and/or S&W Calculation Package No. 8700-UR(B)-223.^(3.1.3.18)

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• \$ 2 1 7 0	Source terms given in ATTACHMENT A Table 1.1 Zn-65) have been generated from the GALE Compu- NUREG-0017. ^(3.1.3.3) The inputs to GALE are given The Zn-65 source term was generated via Calculatio (21. ^(3.1.1.5, 3.1.3.13)	-1a. These ter Code, a in 1/2-OD n Package	e source terms (without as described in C-3.01 Appendix B. No. ERS-ATL-93-
• 1	Dilution water flow rate of 22,800 gpm = $(15,000 \text{ g})$	om BV-1 +	- 7,800 gpm BV-2).
• [Discharge flow rate prior to dilution of 35 gpm for t RM-1LW-104).	he Liquid V	Waste Effluent Monitor
• I S	Discharge flow rate prior to dilution of 15 gpm for the shower Drains Monitor (RM-1LW-116).	he Laundry	and Contaminated
The ab operat	oove setpoints for (RM-1LW-104 and RM-1LW-11 ing conditions resulting in changes in the discharge	6) can be v and dilutio	aried based on actual n flow rates as follows:
HHSP	$=\frac{542F}{f}$	•	[1.1(1)-1]
wher	e:		
HHS	P = Monitor HIGH-HIGH Alarm Setpoint above ba	ackground	(ncpm)
542 542 542	 Most restrictive proportionality constant based 3.53E+5 ncpm x 35 gpm ÷ 22,800 gpm (RM-11 8.24E+5 ncpm x 15 gpm ÷ 22,800 gpm (RM-11) 	on nominal 2W-104) 2W-116)	flow conditions:
F	= Dilution water flow rate (gpm), BV-1 plus BV-2 Rate (not including release through the Emerger	2 Cooling 7 hcy Outfall	Fower Blowdown Structure).
f	= Discharge flow rate prior to dilution (gpm).		
8.1.1.1.1	BV-1 Mix Radionuclides		
	The "mix" (radionuclides and composition) of the as follows:	ne liquid ef	fluent was determined
	• The liquid source terms that are representation effluent were determined. Liquid source ter the radionuclides in the effluent from ATTA	ive of the " ms are the CMENT A	mix" of the liquid radioactivity levels of A Table 1.1-1a.
	• The fraction of the total radioactivity in the radionuclide "i" (S _i) for each individual radio determined as follows:	liquid efflu onuclide in	ent comprised by the liquid effluent was
	$S_i = \underline{A_i}$		[1.1(1)-2]

$\sum DCUTCT TURCY TURCY FOUND EXECUTY The integration is the integration of the integrati$	Unit: 1/2 Revision: 7 f(yr) in the Radionuc centration on (C _t) was	1/2-ODC-2.01 Level Of Use: General Skill Referent Page Number: 10 of 43
$\frac{\Sigma \text{ A}_{i}}{i}$ where: A_{i} = Annual release of radionuclide "i" (Ci/ATTACHMENT A Table 1.1-1a. 8.1.1.1.2 BV-1 Maximum Acceptable Concentration (All R The maximum acceptable total radioactivity concernationuclides in the liquid effluent prior to dilution C_{t} = \frac{F}{f\Sigma \frac{S_{i}}{S_{i}}} i OEC; where: F = Dilution water flow rate (gpm), BV-1 plue	$\frac{1/2}{\text{Revision:}}$ $\frac{7}{7}$ \frac	General Skill Referen Page Number: 10 of 43 e liquid effluent from clides) n (uCi/ml) of all as determined by: [1.1(1)-3]
DCM: LIQUID EFFLUENTS Σ A _i i where: A _i = Annual release of radionuclide "i" (Ci/ATTACHMENT A Table 1.1-1a. 8.1.1.1.2 BV-1 Maximum Acceptable Concentration (All R The maximum acceptable total radioactivity concertation uclides in the liquid effluent prior to dilution C _t = F f Σ S _i i OEC _i where: F = Dilution water flow rate (gpm), BV-1 plue	Revision: 7 /yr) in the Radionuc centration on (C _t) wa	Page Number: <u>10 of 43</u> e liquid effluent from lides) a (uCi/ml) of all as determined by: [1.1(1)-3]
ΣA_{i} i where: $A_{i} = Annual release of radionuclide "i" (Ci/_ATTACHMENT A Table 1.1-1a. 8.1.1.1.2 BV-1 Maximum Acceptable Concentration (All R The maximum acceptable total radioactivity concernationuclides in the liquid effluent prior to dilution C_{t} = \frac{F}{f \Sigma S_{i}}i OEC_{i}where:F = Dilution water flow rate (gpm), BV-1 plue$	/yr) in the Radionuc centration on (C _t) wa	e liquid effluent from lides) (uCi/ml) of all as determined by: [1.1(1)-3]
ΣA_{i} i where: $A_{i} = Annual release of radionuclide "i" (Ci/ATTACHMENT A Table 1.1-1a. 8.1.1.1.2 BV-1 Maximum Acceptable Concentration (All R The maximum acceptable total radioactivity concernationuclides in the liquid effluent prior to dilution C_{t} = \frac{F}{f \Sigma \frac{S_{i}}{\sum_{i}}} i OEC;where:F = Dilution water flow rate (gpm), BV-1 plue$	/yr) in the Radionuc centration on (C _t) wa	e liquid effluent from lides) n (uCi/ml) of all as determined by: [1.1(1)-3]
i where: $A_i = Annual release of radionuclide "i" (Ci/ ATTACHMENT A Table 1.1-1a. 8.1.1.1.2 BV-1 Maximum Acceptable Concentration (All R The maximum acceptable total radioactivity concernationuclides in the liquid effluent prior to dilution C_t = \frac{F}{f \sum \frac{S_i}{\sum}}{i \text{ OEC}_i}where:F = Dilution water flow rate (gpm), BV-1 plue Discussioned and the second secon$	(yr) in the Radionuc centration on (C _t) wa	e liquid effluent from lides) n (uCi/ml) of all as determined by: [1.1(1)-3]
where: $A_i = Annual release of radionuclide "i" (Ci/ATTACHMENT A Table 1.1-1a. 8.1.1.1.2 BV-1 Maximum Acceptable Concentration (All R The maximum acceptable total radioactivity concernationuclides in the liquid effluent prior to dilution C_t = \frac{F}{f \sum \frac{S_i}{S_i}}i OEC_iwhere:F = Dilution water flow rate (gpm), BV-1 plue Discussion for the liquid effluent prior to dilution the liquid efflue$	/yr) in the Radionuc centration on (C _t) wa	e liquid effluent from lides) n (uCi/ml) of all as determined by: [1.1(1)-3]
where: $A_i = Annual release of radionuclide "i" (Ci/ATTACHMENT A Table 1.1-1a. 8.1.1.1.2 BV-1 Maximum Acceptable Concentration (All R The maximum acceptable total radioactivity conc radionuclides in the liquid effluent prior to dilution C_t = \frac{F}{f \sum \frac{S_i}{S_i}}i OECiwhere:F = Dilution water flow rate (gpm), BV-1 plu Discussed by the four including relevant the$	/yr) in the Radionuc centration on (C _t) wa	e liquid effluent from lides) n (uCi/ml) of all as determined by: [1.1(1)-3]
$A_{i} = Annual release of radionuclide "i" (Ci/ATTACHMENT A Table 1.1-1a.8.1.1.1.2 BV-1 Maximum Acceptable Concentration (All RThe maximum acceptable total radioactivity concernationuclides in the liquid effluent prior to dilutionC_{t} = \frac{F}{f \sum \frac{S_{i}}{i}}i OECiwhere:F = Dilution water flow rate (gpm), BV-1 plu$	(yr) in the Radionuc centration on (C _t) wa	e liquid effluent from lides) n (uCi/ml) of all as determined by: [1.1(1)-3]
A_i = Annual release of radionuclide T (Cl/ ATTACHMENT A Table 1.1-1a.8.1.1.1.2BV-1 Maximum Acceptable Concentration (All F The maximum acceptable total radioactivity conc radionuclides in the liquid effluent prior to dilution $C_t = \frac{F}{f \Sigma \frac{S_i}{S_i}}$ i OEC; F = Dilution water flow rate (gpm), BV-1 plu Discontered by the four prior to dilution of the second se	(C_t) in the Radionuc centration on (C_t) with the rest of th	e liquid ernuent from lides) a (uCi/ml) of all as determined by: [1.1(1)-3]
ATTACHMENT A Table 1.1-14.8.1.1.1.2BV-1 Maximum Acceptable Concentration (All FThe maximum acceptable total radioactivity concertation contradionuclides in the liquid effluent prior to dilution $C_t = F$ $f \Sigma \underline{S_i}$ $i OEC_i$ where:F= Dilution water flow rate (gpm), BV-1 pluDiscussion Data (set in bodies or base the set in the set of the set	Radionuc centration on (C _t) wa	lides) n (uCi/ml) of all as determined by: [1.1(1)-3]
8.1.1.1.2 BV-1 Maximum Acceptable Concentration (All F The maximum acceptable total radioactivity conc radionuclides in the liquid effluent prior to dilutio $C_t = F$ $f \Sigma \underline{S_i}$ $i \text{ OEC}_i$ where: F = Dilution water flow rate (gpm), BV-1 plu Discussed by the fort including relevant the	Radionuc centration on (C _t) wa	lides) n (uCi/ml) of all as determined by: [1.1(1)-3]
The maximum acceptable total radioactivity conc radionuclides in the liquid effluent prior to dilutio $C_{t} = \frac{F}{\int \Sigma \frac{S_{i}}{S_{i}}}$ i OEC; where: F = Dilution water flow rate (gpm), BV-1 plu	entration on (C _t) wa	n (uCi/ml) of all as determined by: [1.1(1)-3]
radionuclides in the liquid effluent prior to dilutio $C_{t} = F$ $f \Sigma \underline{S_{i}}$ $i \text{ OEC}_{i}$ where: F = Dilution water flow rate (gpm), BV-1 plu Discussion in the liquid is a subset of the line of t	on (C _t) wa	as determined by: [1.1(1)-3]
$C_{t} = F$ $f \Sigma \underline{S_{i}}$ $i \text{ OEC}_{i}$ where: $F = \text{Dilution water flow rate (gpm), BV-1 plu}$ $D = 1 \text{ by the (act including relevant the flow rate)}$		[1.1(1)-3]
$C_{t} = \frac{F}{f \Sigma \underline{S_{i}}}$ $i \text{ OEC}_{i}$ where: $F = \text{Dilution water flow rate (gpm), BV-1 plu}$ $Discussion Parts (act including calculated the set of the set$		[1.1(1)-3]
$f \Sigma \underline{S_i}$ i OEC _i where: F = Dilution water flow rate (gpm), BV-1 plu Discussion of the second se		
i OEC _i where: F = Dilution water flow rate (gpm), BV-1 plu Discussion of the second		
where: F = Dilution water flow rate (gpm), BV-1 plu Discussion Parts (act including release the		
F = Dilution water flow rate (gpm), BV-1 plu		
F = Dilution water flow rate (gpm), BV-1 plu		
Blowdown Rate (not including release thi	is BV-2 (rough the	Cooling Tower e Emergency Outfall
Structure).		
= 22,800 gpm = (15,000 gpm BV-1 + 7,800)	0 gpm B	V-2)
f = Maximum acceptable discharge flow rate	prior to	dilution (gpm).
= 35 gpm for Liquid Waste Effluent Monito	or (RM-1	LW-104).
= 15 gpm for Laundry and Contaminated SI 1LW-116).	hower D	rains Monitor (RM-
OEC - The ODOM liquid affluent concentration	limit for	radionualida "!"
(uCi/ml) from ATTACHMENT A Table 1 times the new 10 CFR 20, Appendix B (2 2 EC values	1.1-1a. 7 20.1001-2	The OEC is set at 10 20.2402) Table 2, Co
S_i = The fraction of total radioactivity attribute Equation [1.1(1)-2].	ed to rad	lionuclide "i", from
8.1.1.1.3 BV-1 Maximum Acceptable Concentration (Indiv	vidual Ra	dionuclide)
The maximum acceptable radioactivity concentrat in the liquid effluent prior to dilution (C_i) was determined as the second s	tion (uCi	/ml) of radionuclide " by:
$C_i = S_i C_t$		[1.1(1)-4]

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Title: ODCM: LIQUID EFFLUENTS 8.1.1.1.4 BV-1 Monitor Count Rate The calculated monitor count rate (ncpm) above radionuclides; (CR) was determined by: $CR = \Sigma C_i E_i$ i where: $E_i = Detection efficiency of the monitor for from ATTACHMENT A Table 1.1-1a Calculation Package ERS-SFL-92-039 8.1.1.1.5 BV-1 Monitor HHSP The monitor HIGH-HIGH Alarm Setpoint above set at the CR value. Since only one tank can be r $	Unit: 1/2 Revision: 7 backgro backgro a. If not 9. ^(3.1.1.4)	Level Of Use: General Skill Reference Page Number: 11 of 43 und attributed to the [1.1(1)-5] uclide "i" (cpm/uCi/ml) listed there, from
ODCM: LIQUID EFFLUENTS $8.1.1.1.4$ BV-1 Monitor Count RateThe calculated monitor count rate (ncpm) above radionuclides; (CR) was determined by: $CR = \Sigma C_i E_i$ iwhere: $E_i = Detection efficiency of the monitor forfrom ATTACHMENT A Table 1.1-1aCalculation Package ERS-SFL-92-0398.1.1.1.5BV-1 Monitor HHSPThe monitor HIGH-HIGH Alarm Setpoint aboveset at the CR value. Since only one tank can be r$	1/2 Revision: 7 backgro backgro a. If not 9. ^(3.1.1.4)	General Skill Reference Page Number: 11 of 43 und attributed to the [1.1(1)-5] helide "i" (cpm/uCi/ml) listed there, from
ODCM: LIQUID EFFLUENTSI8.1.1.1.4BV-1 Monitor Count RateThe calculated monitor count rate (ncpm) above radionuclides; (CR) was determined by: $CR = \sum C_i E_i$ iwhere: $E_i = Detection efficiency of the monitor forfrom ATTACHMENT A Table 1.1-1aCalculation Package ERS-SFL-92-0398.1.1.1.5BV-1 Monitor HHSPThe monitor HIGH-HIGH Alarm Setpoint aboveset at the CR value. Since only one tank can be r$	r radionu a. If not 9. ^(3.1.1.4)	Page Number: 11 of 43 und attributed to the [1.1(1)-5] uclide "i" (cpm/uCi/ml) listed there, from
SolutionEIQUID EFFLUENTS8.1.1.1.4BV-1 Monitor Count RateThe calculated monitor count rate (ncpm) above radionuclides; (CR) was determined by: $CR = \Sigma C_i E_i$ iwhere: $E_i = Detection efficiency of the monitor forfrom ATTACHMENT A Table 1.1-1aCalculation Package ERS-SFL-92-0398.1.1.1.5BV-1 Monitor HHSPThe monitor HIGH-HIGH Alarm Setpoint aboveset at the CR value. Since only one tank can be r$	7 backgro r radionu a. If not 9. ^(3.1.1.4)	und attributed to the [1.1(1)-5] nclide "i" (cpm/uCi/ml) listed there, from
8.1.1.1.4BV-1 Monitor Count RateThe calculated monitor count rate (ncpm) above radionuclides; (CR) was determined by: $CR = \sum C_i E_i$ iwhere: $E_i = Detection efficiency of the monitor forfrom ATTACHMENT A Table 1.1-1aCalculation Package ERS-SFL-92-0398.1.1.1.5BV-1 Monitor HHSPThe monitor HIGH-HIGH Alarm Setpoint aboveset at the CR value. Since only one tank can be r$	backgro r radionu a. If not 9. ^(3.1.1.4)	und attributed to the [1.1(1)-5] uclide "i" (cpm/uCi/ml) listed there, from
The calculated monitor count rate (ncpm) above radionuclides; (CR) was determined by: $CR = \Sigma C_i E_i$ iwhere: $E_i = Detection efficiency of the monitor forfrom ATTACHMENT A Table 1.1-1aCalculation Package ERS-SFL-92-0398.1.1.1.5BV-1 Monitor HHSPThe monitor HIGH-HIGH Alarm Setpoint aboveset at the CR value. Since only one tank can be r$	r radionu a. If not 9. ^(3.1.1.4)	und attributed to the [1.1(1)-5] uclide "i" (cpm/uCi/ml) listed there, from
$CR = \Sigma C_i E_i$ i where: $E_i = Detection efficiency of the monitor for from ATTACHMENT A Table 1.1-1a Calculation Package ERS-SFL-92-039 8.1.1.1.5 BV-1 Monitor HHSP The monitor HIGH-HIGH Alarm Setpoint above set at the CR value. Since only one tank can be r$	r radionu a. If not 9. ^(3.1.1.4) e backgro	[1.1(1)-5] aclide "i" (cpm/uCi/ml) listed there, from
where: E _i = Detection efficiency of the monitor for from ATTACHMENT A Table 1.1-1a Calculation Package ERS-SFL-92-039 8.1.1.1.5 BV-1 Monitor HHSP The monitor HIGH-HIGH Alarm Setpoint above set at the CR value. Since only one tank can be r	r radionu a. If not 9. ^(3.1.1.4) e backgro	iclide "i" (cpm/uCi/ml) listed there, from
 E_i = Detection efficiency of the monitor for from ATTACHMENT A Table 1.1-1a Calculation Package ERS-SFL-92-039 8.1.1.1.5 BV-1 Monitor HHSP The monitor HIGH-HIGH Alarm Setpoint above set at the CR value. Since only one tank can be r 	r radionu a. If not 9. ^(3.1.1.4) e backgro	iclide "i" (cpm/uCi/ml) listed there, from
8.1.1.1.5 BV-1 Monitor HHSP The monitor HIGH-HIGH Alarm Setpoint above set at the CR value. Since only one tank can be r	e backgro	
The monitor HIGH-HIGH Alarm Setpoint above set at the CR value. Since only one tank can be r	e backgro	
of this value is not necessary to compensate for resource.	released a release fro	at a time, adjustment . om more than one
8.1.1.2 BV-1 Setpoint Determination Based On Analysis Pr	rior To]	Release
The following method applies to liquid releases when demaximum acceptable discharge flow rate prior to dilution HIGH Alarm Setpoint based on this flow rate for the Li (RM-1LW-104) and the Laundry and Contaminated Sh 1LW-116) during all operational conditions.	leterminin on and th iquid Wa nower Dr	ng the setpoint for the ne associated HIGH- aste Effluent Monitor rains Monitor (RM-
The monitor alarm setpoint is set slightly above (a factor results from the concentration of gamma emitting radion spurious alarms. To compensate for this increase in the allowable discharge flow rate is reduced by the same factor.	or of 1.2: onuclides e monitor ctor.	5) the count rate that in order to avoid r alarm setpoint, the
When the discharge flow rate is limited by the radwaste or by administrative selection rather than the allowable activity concentration, the alarm setpoint will be propor the excess dilution factor provided.	e discharg flow rate rtionally	ge pump rate capacity e determined form adjusted based upon

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	8.1.1.2.1	BV-1 Maxim	um Acceptable Discharge Flow Ra	ite	1 12 01 43
		The maximur determined by	n acceptable discharge flow rate (f y:) prior to d	lilution (gpm) is
		$f = \frac{F}{1.25 \Sigma \frac{C_i}{OE}}$			[1.1(1)-6]
		where:			
		F =	Dilution water flow rate, BV-1 pl Blowdown (gpm).	lus BV-2 C	Cooling Tower
			The dilution water flow rate may tower blowdown flow from both structure (but excluding emergen simultaneous liquid discharges are	include the units exitir cy outfall s e administr	e combined cooling ng the discharge tructure flow) when atively prohibited.
		C _i =	Radioactivity concentration of rad effluent prior to dilution (uCi/ml) effluent to be released.	dionuclide from analy	"i" in the liquid vsis of the liquid
		1.25 =	A factor to prevent spurious alarr mixture of radionuclides which af	ns caused l fect the mo	by deviations in the onitor response.
		OEC _i =	The ODCM liquid effluent concer (uCi/ml) from ATTACHMENT A at 10 times the new 10 CFR 20, A Table 2, Col. 2 EC values.	ntration lim A Table 1.1 Appendix B	it for radionuclide "i" -1a. The OEC is set (20.1001-20.2402)
	8.1.1.2.2	BV-1 Monito	r Count Rate		
		The calculate radionuclides,	d monitor count rate (ncpm) above , (CR) is determined by:	backgrou	nd attributed to the
		$CR = 1.25 \Sigma$ i	C _i E _i		[1.1(1)-7]
		where:			
		E _i = The d (cpm/ there,	letection efficiency of the monitor f 'uCi/ml) from ATTACHMENT A from Calculation Package ERS-SI	for radionu Table 1.1-1 FL-92-039.	clide "i" a. If not listed (3.1.1.4)

1.25 = A factor to prevent spurious alarms caused by deviations in the mixture of radionuclides which affect the monitor response.

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	8.1.1.2.3	BV-1 Monitor HHSP			
		The liquid effluent monitor HIGH-HIGH (ncpm) should be set at the CR value adju provided as defined in the following equa	Alarm Setpoint usted by any exc tion:	above background ess dilution factor	
		$HHSP = CR \underline{f} \\ f'$		[1.1(1)-8]	
		where:			
		HSP= Monitor HIGH-HIGH Alarr	n Setpoint above	e background.	
		CR = Calculated monitor count ra	te (ncpm) from e	equation [1.1(1)-7].	
		f = Maximum acceptable discha determined by equation [1.]	arge flow rate pr l(1)-6].	ior to dilution	
8.1.2	<u>BV-2 M</u>	f = Actual maximum discharge f discharge. The reduced val or administrative selection.	llow rate to be m ue of f may be d	naintained for the lue to pump limitations	
	This proc concentra areas exc Table 2, 0 exceeds a	redure determines the monitor HIGH Alarm ation of radionuclides in the liquid effluent re eeds 10 times the EC's specified in 10 CFR 2 Column 2 for radionuclides other than dissol a concentration of 2E-4 uCi/ml for dissolved	Setpoint that inc cleased from the 20, Appendix B ved or entrained or entrained not	licates if the site to unrestricted (20.1001-20.2402), noble gases or ble gases. ^(3.1.2.6)	
	The meth determine Section 8 radioactiv This conc Section 8 setpoint v the nuclid	addology described in Section 8.1.2.2 is an all the (2SGC-RQ100) monitor HIGH Alarm 1.2.2 may be used for any batch release and vity concentration of the liquid effluent prior centration is equivalent to a monitor response 1.2.1 and allows for a tritium concentration was obtained by use of a conversion factor of the mix. ^(3.1.2.6)	Iternative method Setpoint (HSP). I shall be used with to dilution excer- e and HIGH Ala of up to 2.16E+ f 5.61E-9 uCi/m	d to be used to The methodology in hen the total gamma eds 1.14E-3 uCi/ml. rm Setpoint derived in -0 uCi/ml. The l/cpm determined for	

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8.1.2.1 BV-2 Setpoint Determination Based On A Conservative Mix

The HIGH Alarm Setpoint for the liquid monitors shall be set at the values listed in the following Table:

BV-2 LIQUID MONITOR SETPOINTS							
		µCi/ml Above Backgroun					
Monitor DV HSP				ASP			
Liquid Waste Effluent Monitor	2SGC-RQ100	1.14E-3	≤ 1.14E-3	≤ 7.99E-4			
Service Water Monitor	2SWS-RQ101	4.30E-5	≤ 4.30E-5	≤ 3.01E-5			
Service Water Monitor	2SWS-RQ102	4.30E-5	≤ 4.30E-5	≤ 3.01E-5			

The setpoint for 2SGC-RQ100 is based on the following conditions, however, the setpoint bases for 2SWS-RQ101 and 2SWS-RQ102 can be found in Calculation Package ERS-ATL-93-021.^(3.1.2.6)

- Source terms given in ATTACHMENT A Table 1.1-1b. These source terms (without Zn-65) have been generated by using models and input similar to NUREG-0017. The inputs are given in 1/2-ODC-3.01. The Zn-65 source term was generated via Calculation Package No. ERS-ATL-93-021.^(3.1.2.6, 3.1.3.13)
- Dilution water flow rate of 22,800 gpm = (15,000 gpm BV-1 + 7,800 gpm BV-2).

• Discharge flow rate prior to dilution of 80 gpm for the Liquid Waste Effluent Monitor (2SGC-RQ100).

• A software conversion factor of 5.61E-9 uCi/ml/cpm associated with Liquid Waste Effluent Monitor (2SGC-RQ100).^(3.1.2.6)

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The a result HSP	bove setpoint for (2SGC-RQ100) can be using in the discharge and dilution flow rates $= \frac{4.00E-6 F}{c}$	varied based on act s as follows:	tual operating conditio [1.1(2)-1]	
	I			
wher	e:			
	HSP = Monitor HIGH Alarm Setpo	int (uCi/ml) above	background.	
	4.00E-6 = Proportionality constant base 4.00E-6 = 1.14E-3 net uCi/n	ed on nominal flow nl x 80 gpm ÷ 22,8	v conditions: 00 gpm	
	F = Dilution water flow rate, BV Rate (gpm).	/-1 plus BV-2 Coo	ling Tower Blowdown	
	f = Discharge flow rate prior to	dilution (gpm).		
8.1.2.1.1	BV-2 Mix Radionuclides			
	The "mix" (radionuclides and compositiate and composition of the second se	tion) of the liquid e	effluent was determine	
	• The liquid source terms that are repetition of the figure of the source terms that are repetition of the source terms terms that are repetition of the source terms	presentative of the cource terms are the m ATTACHMEN	"mix" of the liquid e radioactivity levels o T A Table 1.1-1b.	
	• The fraction of the total radioactivi radionuclide "i" (Si) for each indivi determined as follows:	ity in the liquid effl dual radionuclide i	uent comprised by n the liquid effluent wa	
	$Si = \underline{Ai}$ ΣA_i i	·	[1.1(2)-2]	
	where:			
	Ai = Annual release of radionucli ATTACHMENT A Table 1	de "i" (Ci/yr) in the .1-1b.	e liquid effluent from	

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Beave	er Valley Power Station	Procedure N	$\frac{1}{2} - \frac{1}{2} - \frac{1}{2} = \frac{1}{2} - \frac{1}{2} - \frac{1}{2} = \frac{1}{2} - \frac{1}{2} = \frac{1}{2} - \frac{1}{2} = \frac{1}{2} - \frac{1}{2} = \frac{1}{2} - \frac{1}{2} - \frac{1}{2} - \frac{1}{2} = \frac{1}{2} - \frac{1}$
Title:		Unit:	Level Of Use:
		1/2	General Skill Reference
DDCM: LIQUID EF	FLUENTS	Revision: 7	Page Number: 16 of 43
8.1.2.1.2	BV-2 Maximum Acceptable Concentration (A	All Radionu	clides)
	The maximum acceptable total radioactivity c radionuclides in the liquid effluent prior to dil	oncentration ution (C _t) w	n (uCi/ml) of all vas determined by:
	$C_{t} = \underbrace{F}_{f \Sigma_{i}} \underbrace{S_{i}}_{OEC_{i}}$		[1.1(2)-3]
	where:		
	F = Dilution water flow rate (gpm), BV-1 Blowdown Rate (not including release Structure).	plus BV-2 (out through	Cooling Tower h the Emergency Outfal
	= 22,800 gpm = (15,000 gpm BV-1 + 7)	800 gpm B	V-2).
	f = Maximum acceptable discharge flow ra	te prior to	dilution (gpm).
	= 80 gpm for Liquid Waste Process Efflu	ent Monito	or (2SGC-RQ100).
	OECi = The ODCM liquid effluent concentratio (uCi/ml) from ATTACHMENT A Tab times the new 10 CFR 20, Appendix B 2 EC values.	on limit for le 1.1-1b.] (20.1001-2	radionuclide "i" The OEC is set at 10 20.2402) Table 2, Col.
~	S_i = The fraction of total radioactivity attrib Equation [1.1(2)-2].	outed to rad	ionuclide "i", from
8.1.2.1.3	BV-2 Maximum Acceptable Concentration (In	ndividual Ra	adionuclide)
	The maximum acceptable radioactivity concentriate "i" in the liquid effluent prior to dilution (C_i) v	tration (uC vas determin	i/ml) of radionuclide ned by:
	$C_i = S_i C_t$		[1.1(2)-4]

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Bea	ver Valley Power Station	Procedure Nu	mber: $1/2 ODC 2 01$			
	SFELUENTS	Unit: <u>1/2</u> Revision:	Level Of Use: General Skill Referenc Page Number:			
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8.1.2.1.4	BV-2 Monitor Display Value	BV-2 Monitor Display Value				
	The calculated monitor Display Value (the radionuclides, (DV), was determined	uCi/ml) above bac d by:	kground attributed to			
I	$DV = 5.61E-9 \Sigma_i C_i E_i$		[1.1(2)-5]			
	where:					
	5.61E-9 = Conversion factor (uC the source term mix.	i/ml/cpm), an ave	rage determined for			
	E _i = Detection efficiency of (cpm/uCi/ml) from AT listed there, from Calc	f the monitor for r TACHMENT A ulation Package E	adionuclide "i" Fable 1.1-1b. If not RS-SFL-86-026. ^(3.1.2.2)			
8.1.2.1.5	BV-2 Monitor HSP	BV-2 Monitor HSP				
	The monitor HIGH Alarm Setpoint abo the DV value.	ve background (u	Ci/ml) should be set at			
8.1.2.2 <u>]</u>	BV-2 Setpoint Determination Based On A	<u>nalysis Prior To I</u>	Release			
- - - - - - 	The following method applies to liquid release naximum acceptable discharge flow rate prior Alarm Setpoint based on this flow rate for the RQ100) during all operational conditions.	es when determining to dilution and th Liquid Waste Eff	ng the setpoint for the e associated HIGH luent Monitor (2SGC-			
I t	The monitor alarm setpoint is set slightly above reading that results from the concentration of o avoid spurious alarms. To compensate for setpoint, the allowable discharge flow rate is r	monitor alarm setpoint is set slightly above (a factor of 1.25) the concentration ling that results from the concentration of gamma emitting radionuclides in order word spurious alarms. To compensate for this increase in the monitor alarm boint, the allowable discharge flow rate is reduced by the same factor.				
-	When the discharge flow rate is limited by the	radwaste discharg	ge pump rate capacity			

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	8.1.2.2.1	BV-2 Maxim	um Acceptable Discharge Flow Ra	nte	· · · · · · · · · · · · · · · · · · ·
		The maximur determined by	n acceptable discharge flow rate (f) prior to d	ilution (gpm) is
		$f = \underline{F}$			[1.1(2)-6]
		$1.25 \Sigma_i \frac{C_i}{OEC}$	Ci .		
		where:			
		F =	Dilution water flow rate, BV-1 pl Blowdown (gpm).	lus BV-2 C	ooling Tower
			The dilution water flow rate may tower blowdown flow from both structure (but excluding emergen simultaneous liquid discharges fro administratively prohibited.	include the units exitin cy outfall s om both pla	e combined cooling og the discharge tructure flow) when unts are
		C _i =	Radioactivity concentration of rad effluent prior to dilution (uCi/ml) effluent to be released.	tionuclide ' from analy	'i" in the liquid sis of the liquid
		1.25 =	A factor to prevent spurious alarr mixture of radionuclides which af	ns caused b fect the mo	by deviations in the onitor response.
		OEC _i =	The ODCM liquid effluent conce "i" (uCi/ml) from Table 1.1-1b. 7 new 10 CFR 20, Appendix B (20. ATTACHMENT A Table 2, Col.	ntration lim The OEC is 1001-20.24 2 EC value	nit for radionuclide set at 10 times the 402) es.

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	Beaver Valley Power Station			Procedure Number:		
Title	Deaves	r vancy ro		Unit	1/2-ODC-2.01	
The.				1/2	General Skill Reference	
ODCM: I	LIQUID EFF	LUENTS		Revision: 7	Page Number: $19 \text{ of } 43$	
	81222	BV-2 Monitor	Display Value			
	0.1.2.2.2					
•		The calculated the radionuclide	monitor Display Value (uCi/m es; (DV) is determined by:	l) above bac	ckground attributed to	
		DV = (1.25) (5	.61E-9) $\Sigma_i C_i E_i$		[1.1(2)-7]	
		where:				
		E _i =	The detection efficiency of the (cpm/uCi/ml) from ATTACI listed there, from Calculation	he monitor HMENT A 1 Package E	for radionuclide "i" Table 1.1-1b. If not ERS-SFL-86-026. ^(3.1.2.2)	
		1.25 =	A factor to prevent spurious alarms caused by deviations in the mixture of radionuclides which affect the monitor response.			
		5.61E-9	= Conversion factor (uCi/ml/c the source term mix.	pm), an ave	rage determined for	
	8.1.2.2.3	BV-2 Monitor	HSP			
		The liquid efflu should be set at defined in the fo	ent monitor HIGH Alarm Setp the DV value adjusted by any following equation:	oint above l excess dilu	background (uCi/ml) tion factor provided as	
		$HSP = DV \underline{f} \\ f'$			[1.1(2)-8]	
		where:				
		HSP = Monitor	HIGH Alarm Setpoint above b	ackground.		
		DV = Calculate 7].	d monitor concentration readir	ng (uCi/ml)	from equation [1.1(2)-	
		f = Maximun equation	n acceptable discharge flow rat [1.1(2)-6].	e prior to di	lution determined by	
		f = Actual ma The reduce selection.	eximum discharge flow rate to local value of f may be due to pr	be maintain ump limitati	ed for the discharge. ons or administrative	
8.2 <u>C</u>	Compliance V	Vith 10 CFR 20	EC Limits (ODCM CONTRO	<u>DL 3.11.1.1</u>	<u>)</u>	
8.2.1	Batch Rel	leases				
8.2	11 Dre-	Release				

The Interval Int		Be	aver Vall	ey Po	wer Stat	tion	Proce	dure Nu	mber: 1/2-0DC-2.01
ODCM: LIQUID EFFLUENTS 1/2 General Skill Reference 000000000000000000000000000000000000	Title:					<u> </u>	Unit:		Level Of Use:
ODEM: LIQUID EFFLUENTS Term and the second se					le u		1 Design	/2	General Skill Reference
The radioactivity content of each batch release will be determined prior to release in accordance with 1/2-ODC-3.03, Table 4.11-1. In order to assure representative samples, at least two tank volumes of entrained fluid from each tank to be discharged shall be recirculated through the mixing eductors. This will be accomplished by recirculating the tank contents for at least the time periods indicated in ATTACHMENT B Table 1.2-1a and 1.2-1b. BV-1 and BV-2 will show compliance with ODCM Control 3.11.1.1 in the following manner: The activity of the various radionuclides in the batch release, determined in accordance with 1/2-ODC-3.03, Table 4.11-1, is divided by the minimum dilution flow to obtain the concentration at the unrestricted area. This calculation is shown in the following equation: Conc ₁ = C.R. [1.2-1] MDF [1.2-1] MDF [1.2-1] MDF [2.0] where: Conc ₁ = Concentration of radionuclide "i" at the unrestricted area (uCi/ml). C ₁ = Concentration of radionuclide "i" in the potential batch release (uCi/ml). C ₁ = Concentration of radionuclide "i" in the potential batch release (uCi/ml). R = Release rate of the batch (gpm). MDF = Minimum dilution flow (gpm). (May be combined BV-1/BV-2 flow when simultaneous liquid discharges are administratively prohibited). The projected concentrations in the unrestricted area re compared to the OEC's. Before a release is authorized, Equation [1.2-2] must be satisfied. Σ_1 (Conc/OEC ₁) < 1 [1.2-2] where: OEC ₁ = The ODCM effluent concentration limit of radionuclide "i" (uCi/ml) from ATTACHMENT A Table 1.1-1a and 1.1-1b. The OEC is set at 10 times t new 10 CFR 20, Appendix B, (20.1001-20.2402) Table 2, Col. 2 EC values. ^(1.1.3,11.2.1) 8.2.1.2 Post-Release Following release from the batch tank, the Post Dose Correction Factor will be calculated in the following manner: PDCF = (VA)/(DFA) [1.2-3]	ODCM:	LIQUID	EFFLUENT	S			Revis	7	20 of 43
The activity of the various radionuclides in the batch release, determined in accordance with 1/2-ODC-3.03, Table 4.11-1, is divided by the minimum dilution flow to obtain the concentration at the unrestricted area. This calculation is shown in the following equation: $Conc_{i} = \frac{C_{i}R_{i}}{MDF}$ (1.2-1) MDF where: $Conc_{i} = Concentration of radionuclide "i" at the unrestricted area (uCi/ml). C_{i} = Concentration of radionuclide "i" in the potential batch release (uCi/ml). R = Release rate of the batch (gpm). (May be combined BV-1/BV-2 flow when simultaneous liquid discharges are administratively prohibited).The projected concentrations in the unrestricted area re compared to the OEC's.Before a release is authorized, Equation [1.2-2] must be satisfied.\Sigma_{i} (Conc_{i}/OEC_{i}) < 1 (1.2-2]where:OEC_{i} = The ODCM effluent concentration limit of radionuclide "i" (uCi/ml) from ATTACHMENT A Table 1.1-1a and 1.1-1b. The OEC is set at 10 times t new 10 CFR 20, Appendix B, (20.1001-20.2402) Table 2, Col. 2 EC values. (5.1.13, 3.1.2.1) 8.2.1.2 Post-Release Following release from the batch tank, the Post Dose Correction Factor will be calculated in the following manner: PDCF = (VA_{i}/(DFA) [1.2-3]$			The radioact accordance v samples, at h shall be recir recirculating ATTACHM with ODCM	ivity con with 1/2- east two culated t the tank ENT B	tent of each ODC-3.03, tank volume through the contents for Table 1.2-1a 3.11.1.1 in	batch release Table 4.11-1 es of entraine mixing educt r at least the and 1.2-1b. the following	e will be dete . In order to ed fluid from ors. This wil time periods BV-1 and B g manner:	ermine assur each ll be a indica V-2 v	ed prior to release in re representative tank to be discharged ccomplished by ated in vill show compliance
$Conc_{i} = \frac{C_{i}R}{MDF}$ where: $Conc_{i} = Concentration of radionuclide "i" at the unrestricted area (uCi/ml). C_{i} = Concentration of radionuclide "i" in the potential batch release (uCi/ml). R = Release rate of the batch (gpm). MDF = Minimum dilution flow (gpm). (May be combined BV-1/BV-2 flow when simultaneous liquid discharges are administratively prohibited). The projected concentrations in the unrestricted area are compared to the OEC's. Before a release is authorized, Equation [1.2-2] must be satisfied. \Sigma_{i} (Conc_{i}/OEC_{i}) < 1 \qquad [1.2-2] where:OEC_{i} = The ODCM effluent concentration limit of radionuclide "i" (uCi/ml) from ATTACHMENT A Table 1.1-1a and 1.1-1b. The OEC is set at 10 times t new 10 CFR 20, Appendix B, (20.1001-20.2402) Table 2, Col. 2 EC values. (S.1.1.3.3.1.2.1) 8.2.1.2 Post-Release Following release from the batch tank, the Post Dose Correction Factor will be calculated in the following manner: PDCF = (VA_{i})/(DFA) \qquad [1.2-3]$			The activity accordance v flow to obtai the following	of the va with 1/2- in the co g equatio	nious radion ODC-3.03, ncentration a	uclides in the Table 4.11-1 at the unrestr	e batch releas , is divided b icted area. 7	e, det y the This ca	termined in minimum dilution alculation is shown in
where: Conc _i = Concentration of radionuclide "i" at the unrestricted area (uCi/ml). C _i = Concentration of radionuclide "i" in the potential batch release (uCi/ml) R = Release rate of the batch (gpm). MDF = Minimum dilution flow (gpm). (May be combined BV-1/BV-2 flow when simultaneous liquid discharges are administratively prohibited). The projected concentrations in the unrestricted area are compared to the OEC's. Before a release is authorized, Equation [1.2-2] must be satisfied. Σ_i (Conc _i /OEC _i) < 1 [1.2-2] where: OEC _i = The ODCM effluent concentration limit of radionuclide "i" (uCi/ml) from ATTACHMENT A Table 1.1-1a and 1.1-1b. The OEC is set at 10 times t new 10 CFR 20, Appendix B, (20.1001-20.2402) Table 2, Col. 2 EC values. ^(3.1.1.3, 3.1.2.1) 8.2.1.2 Post-Release Following release from the batch tank, the Post Dose Correction Factor will be calculated in the following manner: PDCF = $(VA_i)/(DFA)$ [1.2-3]			$Conc_i = \frac{C_i R}{MD}$	F	ч. 				[1.2-1]
Conc _i = Concentration of radionuclide "i" at the unrestricted area (uCi/ml). $C_i = Concentration of radionuclide "i" in the potential batch release (uCi/ml) R = Release rate of the batch (gpm).MDF = Minimum dilution flow (gpm). (May be combined BV-1/BV-2 flow when simultaneous liquid discharges are administratively prohibited). The projected concentrations in the unrestricted area are compared to the OEC's. Before a release is authorized, Equation [1.2-2] must be satisfied. \Sigma_i (Conc_i/OEC_i) < 1 [1.2-2]where:OEC_i = The ODCM effluent concentration limit of radionuclide "i" (uCi/ml) from ATTACHMENT A Table 1.1-1a and 1.1-1b. The OEC is set at 10 times t new 10 CFR 20, Appendix B, (20.1001-20.2402) Table 2, Col. 2 EC values.(3.1.1.3, 3.1.2.1) 8.2.1.2 Post-Release Following release from the batch tank, the Post Dose Correction Factor will be calculated in the following manner: PDCF = (VA_i)/(DFA) [1.2-3]$			where:		н Н				
$C_{i} = Concentration of radionuclide "i" in the potential batch release (uCi/ml) R = Release rate of the batch (gpm). MDF = Minimum dilution flow (gpm). (May be combined BV-1/BV-2 flow when simultaneous liquid discharges are administratively prohibited). The projected concentrations in the unrestricted area are compared to the OEC's. Before a release is authorized, Equation [1.2-2] must be satisfied. \Sigma_{i} (Conc_{i}/OEC_{i}) < 1 \qquad [1.2-2] where:OEC_{i} = The ODCM effluent concentration limit of radionuclide "i" (uCi/ml) from ATTACHMENT A Table 1.1-1a and 1.1-1b. The OEC is set at 10 times t new 10 CFR 20, Appendix B, (20.1001-20.2402) Table 2, Col. 2 EC values.(3.1.1.3, 3.1.2.1) 8.2.1.2 Post-Release Following release from the batch tank, the Post Dose Correction Factor will be calculated in the following manner: PDCF = (VA_{i})/(DFA) [1.2-3]$		•	Conc _i =	Concer	ntration of ra	dionuclide "i	i" at the unre	stricte	ed area (uCi/ml).
$R = Release rate of the batch (gpm).$ $MDF = Minimum dilution flow (gpm). (May be combined BV-1/BV-2 flow when simultaneous liquid discharges are administratively prohibited).$ $The projected concentrations in the unrestricted area are compared to the OEC's. Before a release is authorized, Equation [1.2-2] must be satisfied. \Sigma_i (Conc_i/OEC_i) < 1 \qquad [1.2-2] where: OEC_i = The ODCM effluent concentration limit of radionuclide "i" (uCi/ml) from ATTACHMENT A Table 1.1-1a and 1.1-1b. The OEC is set at 10 times t new 10 CFR 20, Appendix B, (20.1001-20.2402) Table 2, Col. 2 EC values.(3.1.1.3, 3.1.2.1) 8.2.1.2 Post-Release Following release from the batch tank, the Post Dose Correction Factor will be calculated in the following manner: PDCF = (VA_i)/(DFA) \qquad [1.2-3]$			C _i =	Concer	ntration of ra	dionuclide "i	i" in the poter	ntial b	oatch release (uCi/ml)
MDF = Minimum dilution flow (gpm). (May be combined BV-1/BV-2 flowwhen simultaneous liquid discharges are administratively prohibited). The projected concentrations in the unrestricted area are compared to the OEC's. Before a release is authorized, Equation [1.2-2] must be satisfied. $\Sigma_i (Conc_i/OEC_i) < 1 \qquad [1.2-2]$ where: $OEC_i = \text{The ODCM effluent concentration limit of radionuclide "i" (uCi/ml) fromATTACHMENT A Table 1.1-1a and 1.1-1b. The OEC is set at 10 times tnew 10 CFR 20, Appendix B, (20.1001-20.2402) Table 2, Col. 2 ECvalues.(3.1.1.3, 3.1.2.1)8.2.1.2 Post-ReleaseFollowing release from the batch tank, the Post Dose Correction Factor will becalculated in the following manner:PDCF = \frac{(VA_i)/(DFA)}{(ML)((DEE))} \qquad [1.2-3]$			R =	Release	e rate of the	batch (gpm).			
The projected concentrations in the unrestricted area are compared to the OEC's. Before a release is authorized, Equation [1.2-2] must be satisfied. $\Sigma_i (\text{Conc}_i/\text{OEC}_i) < 1$ [1.2-2] where: $OEC_i = \text{The ODCM effluent concentration limit of radionuclide "i" (uCi/ml) from ATTACHMENT A Table 1.1-1a and 1.1-1b. The OEC is set at 10 times t new 10 CFR 20, Appendix B, (20.1001-20.2402) Table 2, Col. 2 EC values.(3.1.1.3, 3.1.2.1) 8.2.1.2 Post-Release Following release from the batch tank, the Post Dose Correction Factor will be calculated in the following manner: PDCF = \frac{(VA_i)/(DFA)}{(UL)/(DEL)} [1.2-3]$:		MDF =	Minimu when s	um dilution f imultaneous	low (gpm). liquid discha	(May be com Irges are adm	bined inistra	BV-1/BV-2 flow atively prohibited).
 Σ_i (Conc_i/OEC_i) < 1 [1.2-2] where: OEC_i = The ODCM effluent concentration limit of radionuclide "i" (uCi/ml) from ATTACHMENT A Table 1.1-1a and 1.1-1b. The OEC is set at 10 times t new 10 CFR 20, Appendix B, (20.1001-20.2402) Table 2, Col. 2 EC values.^(3.1.1.3, 3.1.2.1) 8.2.1.2 Post-Release Following release from the batch tank, the Post Dose Correction Factor will be calculated in the following manner: PDCF = (VA_i)/(DFA) [1.2-3] 			The projecte Before a rele	d concer ase is au	ntrations in th thorized, Eq	ne unrestricte uation [1.2-2	ed area are co 2] must be sat	ompar tisfied	ed to the OEC's.
 where: OEC_i = The ODCM effluent concentration limit of radionuclide "i" (uCi/ml) from ATTACHMENT A Table 1.1-1a and 1.1-1b. The OEC is set at 10 times t new 10 CFR 20, Appendix B, (20.1001-20.2402) Table 2, Col. 2 EC values.^(3.1.1.3, 3.1.2.1) 8.2.1.2 Post-Release Following release from the batch tank, the Post Dose Correction Factor will be calculated in the following manner: PDCF = (VA_i)/(DFA) [1.2-3] 			Σ_i (Conc _i /OE	EC _i) < 1					[1.2-2]
 OEC_i = The ODCM effluent concentration limit of radionuclide "i" (uCi/ml) from ATTACHMENT A Table 1.1-1a and 1.1-1b. The OEC is set at 10 times t new 10 CFR 20, Appendix B, (20.1001-20.2402) Table 2, Col. 2 EC values.^(3.1.1.3, 3.1.2.1) 8.2.1.2 Post-Release Following release from the batch tank, the Post Dose Correction Factor will be calculated in the following manner: PDCF = (VA_i)/(DFA) [1.2-3] 			where:				:		
8.2.1.2 Post-Release Following release from the batch tank, the Post Dose Correction Factor will be calculated in the following manner: $PDCF = \frac{(VA_t)/(DFA)}{(VL)/(DFL)}$ [1.2-3]			OEC _i = Th AT ne va	e ODCM FTACHN w 10 CF lues. ^{(3.1.1.}	A effluent co MENT A Tal R 20, Apper 3, 3.1.2.1)	ncentration lible 1.1-1a an Idix B, (20.1)	imit of radior d 1.1-1b. Th 001-20.2402	nuclid ne OE) Tabl	e "i" (uCi/ml) from C is set at 10 times the 2, Col. 2 EC
Following release from the batch tank, the Post Dose Correction Factor will be calculated in the following manner: $PDCF = \frac{(VA_t)/(DFA)}{(VL)/(DFL)}$ [1.2-3]	8.	.2.1.2	Post-Release	;					
$PDCF = \frac{(VA_t)/(DFA)}{(VL)/(DFL)}$ [1.2-3]			Following re calculated in	lease fro the follo	m the batch wing manne	tank, the Pos r:	st Dose Corre	ection	Factor will be
			PDCF = (VA)	At)/(DFA)	\		-	[1.2-3]

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where:				
PCDF =	Post Dose Correction Factor.	÷ 1		
$VA_t =$	Actual Volume of tank released (gal).		
DFA =	Actual Dilution Flow during relea	se (gpm).		
VI _t =	Initial Volume authorized for rele	ase (gal).		
DFI =	Initial Dilution Flow authorized for	or release (gpm).	
The concentration calculated in the u Correction Factor	of each radionuclide following rele nrestricted area in the following mathematical shown in equation $[1.2-3]$ is >1:	ase from th nner when	ne batch tank will be the Post Dose	
The average activ the actual dilution unrestricted area.	ity of radionuclide "i" during the tim flow during the period of release to This calculation is shown in the foll	e period o obtain the lowing equ	f release is divided by concentration in the ation:	
$Conc_{ik} = \frac{C_{ik} V_{tk}}{ADF_{k}}$	•		[1.2-4]	
where:				
Conc _{ik} =	The concentration of radionuclide area, during the release period of	"i" (uCi/m time k.	l) at the unrestricted	
NOTE: Since discharge the difference be period is minima	is from an isolated well-mixed tank etween average and peak concentrat I	at essentia ion within	lly a uniform rate, any discharge	
	Concentration of radionuclide "i" time period k.	(uCi/ml) in	batch release during	
V _{tk} =	Volume of Tank released during the	ime period	k (gal).	
$ADF_k =$	Actual volume of Dilution Flow d k (gal)	uring the ti	me period of release	
To show complian must be satisfied:	ice with ODCM CONTROL 3.11.1.	1, the follo	owing relationship	
$\Sigma_{i}(Conc_{ik}/OEC_{i}) \leq$			[1.2-5]	

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8.2.2 Continuous Releases

Continuous releases of liquid effluents do not normally occur at BV-1 or BV-2. When they do occur, the concentration of various radionuclides in the unrestricted area would be calculated using Equation [1.2-1] with C_{ik}, the concentration of isotope i in the continuous release. To show compliance with ODCM CONTROL 3.11.1.1, Equation [1.2-5] must again be satisfied.

8.3 Compliance With 10 CFR 50 Dose Limits (ODCM CONTROLS 3.11.1.2 And 3.11.1.3)

BV-1 and 2 utilize the concept of a shared liquid radioactive waste system according to NUREG 0133.^(3.1.3.1) This permits mixing of the liquid radwaste for processing. Since the resulting effluent release cannot accurately be ascribed to a specific reactor unit, the treated effluent releases are allocated as defined below.

8.3.1 Cumulation Of Doses (ODCM CONTROL 3.11.1.2)

The dose contribution from the release of liquid effluents will be calculated monthly for each batch release during the month and a cumulative summation of the total body and organ doses will be maintained for each calendar month, current calendar quarter, and the calendar year to date. The dose contribution will be calculated using the following equation:

$$D_{\tau} = \text{UAF } \Sigma \text{ Air } \Sigma^{m} \Delta t_{k} \text{ Ci}_{k} F_{k}$$

i k=1

[1.3-1]

where:

 D_{τ} = The cumulative dose commitment to the total body or any organ, τ , from the liquid effluents for the total time period

 $m \\ \Sigma \Delta t_k \text{ (mrem)} \\ k=1$

 Δt_k = The length of the kth release over which C_{ik} and F_k are averaged for all liquid releases (hours).

 C_{ik} = The average concentration of radionuclide, "i" (uCi/ml), in undiluted liquid effluent during time period Δt_k from any liquid release.

 $A_{i\tau}$ = The site related ingestion dose commitment factor to the total body or any organ τ for each identified principal gamma and beta emitter (mrem-ml per hr-uCi) from ATTACHMENT C Table 1.3-1.

m = Number of releases contributing to the cumulative dose, D_t .

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UAF = Unit a Norm	llocation factor. Provides apportionment ally set at 0.5 for each unit. (Must total to	of dose bet $0 \le 1.0$).	ween BV-1 and BV-2
$F_k =$ The net Define the av unrest the mi	ear field average dilution factor for Cik d ed as the ratio of the average undiluted liq erage flow from the site discharge structu ricted receiving waters, times 3. (3 is the xing effect of the BV-1 and BV-2 dischar	uring any lic uid waste fl re during th site specific ge structure	quid effluent release. ow to the product of he report period to c applicable factor for e).
= (3)(I	Waste Flow Dilution Water Flow)		
The site specific dilution factor ba below the limit s	applicable factor of 3 results in a conservative ased upon Regulatory Guide 1.113 ^(3.1.3.4) n pecified in NUREG-0133, Section 4.3. ^(3.1.4)	ative estima nethodology 3.1)	te of the near field y and is a factor of 10
The dose factor equation from N	$A_{i\tau}$ was calculated for an adult for each iso UREG-0133. ^(3.1.3.1)	otope using	the following
$Ai\tau = 1.14E5$ ($730/D_w + 21BF_i)DF_{i\tau}$		[1.3-2]
where:			
1.14E5 =	$\left[\begin{array}{c} \frac{1E6 \text{ pCi}}{\text{uCi}} \right] x \left[\begin{array}{c} \frac{1E3 \text{ ml}}{1} \end{array} \right] x \left[\frac{1yr}{8760 \text{ hr}} \right]$		
730 =	Adult water consumption rate (liters/yr).		
D _w =	Far field dilution factor from the near fie release point to the potable water intake	ld area with for adult w	in 1/4 mile of the ater consumption.
21 =	Adult fish consumption (kg/yr).		
BF _i =	Bioaccumulation factor for radionuclide Regulatory Guide 1.109 ^(3.1.3.5) (pCi/kg penot available from that reference, it was 50564. ^(3.1.3.8)	"i" in fish fi er pCi/l). H obtained fro	rom Table A-1 of owever, if data was om Table 6 of UCRL-
	The bioaccumulation factor for niobium obtained from either of the above referen IAEA Safety Series No. 57. Justification documented in Appendix A to Calculation	(300 pCi/kg nces noted for use of t on Package	g per pCi/l) was not It was otained from his value is No. ERS-ATL-83-

	Beaver Valley Power Station		Procedure Nu	1/2-ODC-2.01	
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	DF _{it} =	Dose conversion factor for radionucli organ τ (mrem/pCi) from Table E-11 NUREG-0172. ^(3.1.3.7)	ide "i" for adul of Regulatory	ts for a particular Guide 1.109, ^(3.1.3.5) or	
	A table of $A_{i\tau}$ v Table 1.3-1.	values for an adult at BV-1 and BV-2 are	e presented in A	ATTACHMENT C	
	The far field di dilution factor and on the opp factor of 600 re Midland intake fully mixed con the intake.	lution factor (Dw) for BV-1 and BV-2 is of 600 applicable to the Midland water in osite bank from BV-1 and BV-2 (i.e., 20 epresents a conservative fully mixed annu- is located on the opposite bank and is b- aditions would have to exist for the radio	s 200. This values 200. This values 200. This values in the second seco	lue is based on a total 1.3 miles downstream The total dilution ndition. Since the surface, essentially to be transported to	
	The cumulative are compared t	doses (from each reactor unit) for a cal o ODCM CONTROL 3.11.1.2 as follow	endar quarter a /s:	and a calendar year	
	For the calenda	r quarter,			
	$D_{\tau} < 1.5 \text{ mre}$	em total body		[1.3-3]	
	$D_{\tau} < 5$ mrem any organ			[1.3-4]	
	For the calenda	r year,			
	$D_{\tau} < 3$ mrem	total body		[1.3-5]	
	$D_{\tau} < 10$ mre	m any organ		[1.3-6]	
-	If any of the limit pursuant to ODC	s in Equation [1.3-3] through [1.3-6] are M Control 3.11.1.2 of 1/2-ODC-3.03 is	e exceeded, a S requried. ^{(3.1.3.1}	Special Report	
8.3.2	Projection Of Doses (ODCM CONTROL 3.11.1.3)				
	Doses due to liquid releases shall be projected at least once per 31 days in accordance with ODCM CONTROL 3.11.1.3 and this section. The Liquid Radwaste Treatment System shall be used to reduce the radioactive materials in each liquid waste batch prior to its discharge, when the projected doses due to liquid effluent releases from each reactor unit, when averaged over 31 days would exceed 0.06 mrem to the total body or 0.2 mrem to any organ. Doses used in the projection are obtained according to equation [1.3-1]. The 31-day dose projection shall be performed according to the following equations:				

When including pre-release data,

 $D_{31} = \left[\frac{A+B}{T}\right] \quad 31+C$

[1.3-7]

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W	nen not including pre-release data,			
D	$a_{n} = \left[\frac{A}{A}\right] 31 + C$		[1.3-8]	
- :				
wh	ere:			
D ₃	$_1 =$ Projected 31 day dose (mrem).			
A	= Cumulative dose for quarter (mrem).			
B	= Projected dose from this release (mrem).		-	
	 UIITERI days INTO quarter. Walue which may be used to anticipate plant trand 	(mrom)	,	
t	- value which may be used to anticipate plant trends	s (mem).		
8.4 <u>Liquid</u>	Radwaste System			
dispose operation blowdo	of liquid radioactive waste generated as a result of plan onal occurrences. This system also uses some of the co wn system for processing.	nt operations mponents of	s, including anticipate f the steam generator	
Simplifi ATTAC release liquid e	ed flow diagrams of the liquid radwaste systems for BV CHMENT D Figures 1.4-1 and 1.4-2 respectively. A di points is provided as ATTACHMENT D Figure 1.4-3. ffluents is provided as ATTACHMENT E Figure 5-1.	/-1 and BV- agram show A diagram	2 are provided as ing the liquid effluent of the site boundary f	
Since the store	ne concept of a shared liquid radwaste system is used, the d, processed and discharged from either BV-1 or BV-2	hen any liqui 2.	d waste generated ca	
8.4.1 <u>B</u>	-1 Liquid Radwaste System Components			
8.4.1.1				
	1LW-TK-2A/2B: High Level Waste Drain Tanks			
	1LW-TK-2A/2B: High Level Waste Drain Tanks There are two of these tanks, each tank has a capaci located on the northwest wall of the Auxiliary Build liquid wastes from the vent and drain system.	ty of 5,000 g ing (elevatio	gallons. They are n 735'). They receive	
8.4.1.2	 1LW-TK-2A/2B: High Level Waste Drain Tanks There are two of these tanks, each tank has a capaci located on the northwest wall of the Auxiliary Build liquid wastes from the vent and drain system. 1LW-TK-3A/3B: Low Level Waste Drain Tanks 	ty of 5,000 ing (elevatio	gallons. They are n 735'). They receive	
8.4.1.2	 1LW-TK-2A/2B: High Level Waste Drain Tanks There are two of these tanks, each tank has a capaci located on the northwest wall of the Auxiliary Build liquid wastes from the vent and drain system. 1LW-TK-3A/3B: Low Level Waste Drain Tanks There are two of these tanks, each tank has a capaci located in the northwest corner of the Auxiliary Build receive liquid wastes from the vent and drain system 	ty of 5,000 ing (elevatio ty of 2,000 ding (elevat	gallons. They are n 735'). They receive gallons. They are ion 735'). They also	
8.4.1.2 8.4.1.3	 1LW-TK-2A/2B: High Level Waste Drain Tanks There are two of these tanks, each tank has a capaci located on the northwest wall of the Auxiliary Build liquid wastes from the vent and drain system. 1LW-TK-3A/3B: Low Level Waste Drain Tanks There are two of these tanks, each tank has a capaci located in the northwest corner of the Auxiliary Build receive liquid wastes from the vent and drain system 1LW-I-2: Liquid Waste Pre-Conditioning Filter & I 	ty of 5,000 g ing (elevation ty of 2,000 g ding (elevat Demineralize	gallons. They are n 735'). They receive gallons. They are ion 735'). They also	

Beav	er Valley Power Station	Procedure Number:		
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 CC	onditioning filter associated with this system. The pr	e-condition	ing filter can be	
cu ra wi ra an Bı	istomized with varying grades of activated charcoal dionuclides in a colloidal state. Each of the deminer ith different resins for effective removal of chemical dioactive contaminants. Generally, beds 1 and 2 cor ad 4 contain a Mixed Bed Resin. This system is loca uilding (elevation 735').	intended fo alizer beds contaminar ntain a Cati ted in the D	r removal of can be customized nts along with on Resin and beds 3 Decontamination	
8.4.1.3.1	An evaporator (6 gpm) was originally used to provide the prior to in the second prior to in the because of concerns for creating a mixed-waste.	ocess liqui itial issue o	d waste at Unit 1. f the ODCM,	
8.4.1.4 1I	W-TK-7A/7B: Steam Generator Drain Tanks			
Th loo rea Th op raa vc	here are two of these tanks, each tank has a capacity cated in the Fuel Pool Leakage Monitoring Room (e ceive liquid waste that has been processed through t hese tanks can also receive liquid waste from Unit 2. beration, the tank is placed on recirculation through t dioactivity concentration is acceptable for discharge. blumes must be recirculated prior to sampling for disc	of 34,500 levation 73 he liquid w Upon com he deminer A minimu charge perr	gallons. They are 5'). They normally aste demineralizer. apletion of filling ralizer until the um of two tank nit preparation.	
8.4.1.5 RM	M-1LW-104: Liquid Waste Discharge Radiation Mo	onitor		
Th as se lea au	his off-line gamma scintillator radiation monitor cont it is being discharged. The upper activity alarm on t tpoint that would indicate we are approaching OEC aving the site. If an upper activity alarm on this radia tomatically terminates the discharge by closing the d	inuously an his radiatic limits for ra ation monit ischarge lir	alyzes liquid waste on monitor has a adioactive water or is received, it ne isolation valve.	
8.4.2 <u>BV-1 L</u>	aundry and Contaminated Shower Drain System	Compone	ents	
8.4.2.1 1L	W-TK-6A/6B: Laundry and Contaminated Shower	Drain Tan	ks	
Th in lau tar ser or or op sar	here are two of these tanks, each has a capacity of 12 the northwest corner of the Auxiliary Building (elev- undry and contaminated shower drains waste from the nks can also receive mop water waste from Unit 2. The nt to the liquid waste demineralizer for cleanup becaus ganic compounds that will deplete a resin bed. Upon beration, the tank must be recirculated a minimum of mpling for discharge permit preparation.	200 gallons. ation 722'). le Service F The waste i use this wa a completio two tank v	They are located They receive Building. These n these tanks is not ste may contain on of filling olumes prior to	
8.4.2.2 RM Ra	M-1LW-116: Laundry and Contaminated Shower D adiation Monitor	rains Tank	Discharge	

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This off-line gamma scintillator radiation monitor continuously analyzes laundry and contaminated shower drains waste as it is being discharged. The upper activity alarm on this radiation monitor has a setpoint that would indicate we are approaching OEC limits for radioactive water leaving the site. If an upper activity alarm on this radiation monitor is received, it automatically terminates the discharge by closing the discharge line isolation valve.

8.4.3 **BV-2 Liquid Radwaste System Components**

8.4.3.1 2LWS-TK21A/21B: Waste Drain Tanks

There are two of these tanks, each tank has a capacity of 10,000 gallons. They are located in the northeast corner of the Auxiliary Building (elevation 710'). They receive liquid wastes from the vent and drain system. These tanks can also receive liquid wastes from Unit 1. IF further processing is not necessary, THEN it may be placed on recirculation. A minimum of two tank volumes must be recirculated prior to sampling for discharge permit preparation.

8.4.3.2 2SGC-IOE21A/21B: Steam Generator Blowdown Cleanup Ion Exchangers

The main purpose of the ion exchangers is to clean liquid waste water of particulate and dissolved radioactive contaminants through an ion exchange process. There is a resin bed, outlets strainer, and cleanup filter associated with each of these ion exchangers. They are located in the Waste Handling Building (elevation 722').

8.4.3.2.1 Two evaporators (20 gpm each) were originally used to process liquid waste at Unit 2. However, this evaporator was retired prior to initial issue of the ODCM, because of concerns for creating a mixed-waste.

8.4.3.3 2SGC-TK23A/23B: Steam Generator Blowdown Test Tanks

There are two of these tanks, each has a capacity of 18,000 gallons. They are located in the Auxiliary Building (elevation 755'). They receive liquid waste that has been processed through the cleanup ion exchangers. Upon completion of filling operation, the tank is placed on recirculation through the demineralizer until the radioactivity concentration is acceptable for discharge. A minimum of two tank volumes must be recirculated prior to sampling for discharge permit preparation.

8.4.3.4 2SGC-TK21A/21B: Steam Generator Blowdown Hold Tanks

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There are two of these tanks, each has a capacity of 50,000 gallons. They are located in the Waste Handling Building (elevation 722'). These tanks are used to store liquid waste when the radioactive concentration of the steam generator blowdown test tank is not acceptable for discharge. These tanks can also receive liquid wastes from Unit 1. The contents of this tank may be drained or processed through the Unit 1 or Unit 2 Liquid Radwaste Treatment System until the radioactivity concentration is acceptable for discharge. A minimum of two tank volumes must be recirculated prior to sampling for discharge permit preparation.

8.4.3.5 2SGC-RQ100: Liquid Waste Effluent Monitor

This off-line gamma scintillator radiation monitor continuously analyzes liquid waste as it is being discharged. The upper activity alarm on this radiation monitor has a setpoint that would indicate we are approaching OEC limits for radioactive water leaving the site. If an upper activity alarm is received, it automatically terminates the discharge by closing the discharge line isolation valves.

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Beaver V	alley Power Station	n	Procedure Nu	umber: 1/2-ODC-2
Title:		<u> </u>	Unit: 1/2	Level Of Use General S
ODCM: LIQUID EFFLUE	NTS		Revision: 7	Page Number
<u>, , , </u>	ATTACHME	ENT A	L	47
	Page 1 of	f 4		
	LIQUID SOURC	E TERMS		
TABLE 1.1-1a				
BV-1 LIQUID SOURCE TE	RM			
	Ø			(4)
	A	(3)		E _i
		OFC		DETECTIV
	AININUAL KELEASE	(in Citran)		CombiCik
C- 51		SE 2		
Cr-31 Mrs 54	1.5C-5 2.1F /	ンピーン スピーノ		1.18E+7 8 50E+7
1711F-24 Fa_55	1.6F.3	1E-3		0.J7ET/ (5)
Fa-59	83F.4	15-5 1F-4		917F+3
Cr-58	14F-2	2F-4		1 16F+9
Co-60	2.0E-3	3E-5		173E+8
Zn-65 ^(3.1.3.13)	2.69E-2	5E-5		4.67E+7
Np-239	1.4E-4	2E-4		8.49E+7
Br-83	2.5E-5	9E-3		1.36E+6
Br-84	2.5E-5	4E-3		9.75E+7
Br-85	2.7E-6	(5)		6.19E+6
Rb-86	7.5E-5	7E-5		(5)
Sr-89	2.9E-4	8E-5		(5)
Sr-90	1.1E-5	5E-6		(5)
Y-90	9.4E-6	7E-5		(5)
Y-91m	8.7E-6	2E-2		8.98E+
Y-91	5.7E-5	8E-5		2.60E+
Y-93	7.4E-7	2E-4		(5)
Zr-95	5.1E-5	2E-4		8.60E+
ND-95	5.2E-5	3년-4 2도 4		8.64E+
Sr-91	1.3E-3	2世-4 2日 4		0.9/E+
1V10-ソソ To 00	1.15-2	2世-4 1日 つ		2.84년十
1C-77m D., 102	1.1C-2 2 AE 5	1E-2 2E 4		0.70E+
Ru-105	J.+±-J 1.0₽_5	3E-4 3E-5		9.3E#7 (5)
Rh_103m	3 4F-5	6F-2		(5)
Rh_106	5.4E-5 1.0E-5	(5)		(3)
Te-125m	2 SE-5	2E-4		1 83E+
Te-127m	2.5E-5 2.6E-4	9E-5		4 09F+
Te-127	2.02 2.7E-4	1E-3		1 38E+4
Te-129m	1.1E-3	7E-5		4.02E+6
Te-129	6 7E-4	4E-3		1.12E+
I-130	1.2E-4	2E-4		3.08E+
Te-131m	1.6E-4	8E-5		1.82E+8
Te-131	3E-5	8E-4		1.20E+8
I-131	1.6E-1	1E-5		1.11E+8
Te-132	4.3E-3	9E-5		1.17E+8
I-132	4.9E-3	1E-3		2.66E+8
I-133	4 0F-2	7F-5		0.0051

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Beaver Va	Beaver Valley Power Station					
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	ATTACHN	1ENT A				
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		CE TEDME				
	LIQUID SOUR	CE TERMS				
I-134	8.0E-5	4E-3		2.70E+8		
Cs-134	4.6E-2	9E-6		1.99E+8		
I-135	4.3E-3	3E-4		1.19E+8		
Cs-136	8.9E-3	6E-5		2.80E+8		
Cs-137	3.3E-2	1E-5		8.01E+7		
Ba-137m	3.1E-2	1E-5		8.01E+7		
Ba-140	1.1E-4	8E-5		4.37E+7		
La-140	1.1E-4	9E-5		2.00E+8		
Ce-141	5.1E-5	3E-4		5.07E+7		
Ce-143	2.8E-6	2E-4		7.27E+7		
Ce-144	3.2E-5	3E-5		1.06E+7		
Pr-143	2.7E-5	2E-4		1.04E+0		
Pr-144	3.2E-5	6E-3		2.25E+6		
H-3	5.50E+2	1E-2		(5)		
TOTAL ⁽¹⁾	4.05E-1					

(1)

Excluding Tritium and Entrained Noble Gases Source Term for (RM-1LW-104 and RM-1LW-116) from Stone and Webster Calculation Package UR(B)-160^(3.1.1.6) ODCM Effluent Concentration Limit = 10 times the EC values of 10 CFR 20^(3.1.1.3) (2)

(3)

(4) Detection Efficiency for (RM-1LW-104 and RM-1LW-116) from Calculation Package ERS-SFL-92-039 (3:1.1.4) (5)

Insignificant

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	ATTACHME	NT A							
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	LIQUID SOURCI	E TERMS							
TABLE 1 1-16									
BV-2 LIQUID SOURCE TER	M								
	(2)			(4)					
	A:	(3)		DETECTION					
	ANNUAL RELEASE	OFC		FFFICIENCY					
NUCLIDE	(Ci)	(nCi/mb		(com/nCi/ml)					
Cr-51	100E-4	5E-3		201F+7					
Mrn-54	2 50E-5	3E-4		1.2.01E+7					
Fe-55	130E-4	1E_3		(5)					
Fe-59	6.50E-5	1E-3		1265-19					
C~58	1.10E-3	1L-4 2E A		1.20E+8					
Co.60	1.102-5	212-4		2 291210					
7n 65 ^(3.1.3.13)	5 10E-2	5E-5		2.30E+7					
Nh 230	3.10L-2			0.30ET7					
Br 93	3.20E-5	20-4 0E 2		1.0JET0					
Br 94	2.70E-J 5.00E-0	9E-3 4E-2		2.42ETO					
DI-04 DL 96	3.50E-9 2.70E-5	40-3 7E 5		1.30ET0					
S- 90	3,70E-3 2,20E-5	/E-3		1.04E+7					
SI-07 Sr 00	2.20E-3	0E-3 5E-6		1.83E74					
SI-50 Sr 01	6.JUE-7 5.20E-6	JE-0 2E 4		() 104E19					
Ma 00).30E-0	26-4		1.040+8					
To (0)	2.30E-3	2E-4		4.4/E+/					
To 125-m	2.10E-3	1E-2		1.40E+8					
16-12.511 Te 127	1.90E-6	2E-4		3.94E+5					
10-12/m T-127	2,10E-5	9E-5		1.265+5					
1 0 -12/	2,50E-5	IE-3		2.43E+6					
T- 129m	8.20E-5	/E-3		6.53E+6					
16-129	5.30E-5	4E-3		1.96E+7					
1-130 T- 121	2.30E-4	2E-4		5.18E+8					
16-131m	5.20E-5	8E-3		2.85E+8					
	9.40E-6	8E-4		1.88E+8					
I-131	1.WE-1	IE-5		1.96E+8					
1e-132	7.80E-4	9E-5		1.76E+8					
F-132	2.30E-3	IE-3		4.22E+8					
1-133 X 104	6.50E-2	7E-5		1.73E+8					
I-134	4.60E-6	4E-3		4.06E+8					
Cs-134	3.00E-2	9E-6		3.25E+8					
1-135	9.20E-3	3E-4		1.71E+8					
Cs-136	3.90E-3	6E-5		4.28E+8					
Cs-137	2.20E-2	1E-5		1.28E+8					
Ba-137m	2.10E-2	1E-5		1.33E+8					
Ba-140	9.30E-6	8E-5		7.50E+7					
Læ140	8.40E-6	9E-5		3.08E+8					

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	ATTACHM	ENT A		
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	LIQUID SOURC	E TERMS		
TABLE 1.1-1b (continued)				,
BV-2 LIQUID SOURCE TERM				n.
	(2)		. ((4)
	A,]	E.
	ANNUAL	(3)	DETE	CTION
	RELEASE	OEC:	EFFIC	IENCY
NUCLIDE	(Ci)	(uCi/ml)	(cpm/	uCi/ml)
Y-90	6.00E-7	7E-5	م <u>ت الم من</u>	, , , , , , , , , , , , , , , , , , ,
Y-91m	3.60E-6	2E-2	1.59	9E+8
Y-91	4.40E-6	8E-5	3.55	5E+5
Y-93	3.00E-7	2E-4	2.03	3E+7
Zr-95	4.00E-6	2E-4	1.35	5E+8
Nb-95	4.00E-6	3E-4	1.33	3E+8
Ru-103	2.70E-6	3E-4	1.71	E+8
Ru-106	8.20E-7	3E-5	()	5)
Rh-103m	2.70E-6	6E-2	(1	5)
Rh-106	8.20E-7		5.65	5E+7
Ce-141	4.00E-6	3E-4	7.75	5E+7
Ce-143	8.60E-7	2E-4	1.20)E+8
Ce-144	2.60E-6	3E-5	1.87	'E+7
Pr-143	2.30E-6	2E-4	1.63	E+0
Pr-144	2.60E-6	6E-3	3.40)E+6
<u>H-3</u>	<u>5.50E+2</u>	1E-2	(1	5)
TOTAL ⁽¹⁾	2.40E-1			

 Excluding Tritium and Entrained Noble Gases
 Source Term for (2SGC-RQ100) from Computer Code LIQ1BB ^(3.1.2.3)
 ODCM Effluent Concentration Limit = 10 times the EC values of 10 CFR 20 ^(3.1.2.1)
 Detection Efficiency for (2SGC-RQ100) from Calculation Package ERS-SFL-86-026 ^(3.1.2.2) ⁽⁵⁾ Insignificant

	Beaver Valley	n	Procedure Number: 1/2-ODC-2.01		
Title			- <u>.</u>	Unit: 1/2	Level Of Use: General Skill Referen
OĽ	DCM: LIQUID EFFLUENTS			Revision: 7	Page Number: 33 of 43
		ATTACHM	ENT B		<u> </u>
		Page 1 c	of 2		
		RECIRCULATIO	ON TIMES		
B	v-1 RECIRCULATION TIMES RE	QUIKED BEFORE	SAMPLING OF I		SCHARGE TANKS
	TANK DESCRIPTION	ASSET NO.	APPROXIMA (Based on H	TE RECIRC listorical Re	CULATION TIME ⁽¹⁾ ecirculation Rates)
	TANK DESCRIPTION	ASSET NO.	APPROXIMA (Based on H	TE RECIRC listorical Re	CULATION TIME ⁽¹⁾ ecirculation Rates)
	TANK DESCRIPTION Laundry And Contaminated Shower Dain Tanks	ASSET NO.	APPROXIMA (Based on H 2.5 hrs - (1200	TE RECIRC listorical Re gal) (2) / (1	CULATION TIME ⁽¹⁾ ecirculation Rates) 6 gpm)
	TANK DESCRIPTION Laundry And Contaminated Shower Dain Tanks Low Level Waste Drain Tanks	ASSET NO. 1LW-TK-6A/6B 1LW-TK-3A/3B	APPROXIMA (Based on F 2.5 hrs - (1200 1.5 hrs = (2000	TE RECIRC listorical Re gal) (2) / (1 gal) (2) / (2	CULATION TIME ⁽¹⁾ ecirculation Rates) 6 gpm) 45 gpm)
	TANK DESCRIPTION Laundry And Contaminated Shower Dain Tanks Low Level Waste Drain Tanks High Level Waste Drain Tanks	ASSET NO. 1LW-TK-6A/6B 1LW-TK-3A/3B 1LW-TK-2A/2B	APPROXIMA (Based on F 2.5 hrs - (1200 1.5 hrs = (2000 3.4 hrs = (5000	TE RECIRC listorical Re gal) (2) / (1 gal) (2) / (2 gal) (2) / (5	CULATION TIME ⁽¹⁾ ecirculation Rates) 6 gpm) 45 gpm) 50 gpm)
	TANK DESCRIPTIONLaundry And Contaminated Shower Dain TanksLow Level Waste Drain TanksHigh Level Waste Drain TanksRespirator Test Tanks	ASSET NO. 1LW-TK-6A/6B 1LW-TK-3A/3B 1LW-TK-2A/2B 1LW-TK-5A/5B	APPROXIMA (Based on F 2.5 hrs - (1200 1.5 hrs = (2000 3.4 hrs = (5000 1.4 hrs = (3000	TE RECIRC [istorical Re gal) (2) / (1 gal) (2) / (2 gal) (2) / (5 gal) (2) / (7	CULATION TIME ⁽¹⁾ ecirculation Rates) 6 gpm) 45 gpm) 50 gpm) 73 gpm)
	TANK DESCRIPTIONLaundry And Contaminated Shower Dain TanksLow Level Waste Drain TanksHigh Level Waste Drain TanksRespirator Test TanksSteam Generator Drain Tanks	ASSET NO. 1LW-TK-6A/6B 1LW-TK-3A/3B 1LW-TK-2A/2B 1LW-TK-5A/5B 1LW-TK-7A/7B	APPROXIMA (Based on H 2.5 hrs - (1200 1.5 hrs = (2000 3.4 hrs = (5000 1.4 hrs = (3000 17.2 hrs -(3500	TE RECIRC [istorical Re gal) (2) / (1 gal) (2) / (2 gal) (2) / (5 gal) (2) / (7 0 gal) (2)/(6	CULATION TIME ⁽¹⁾ ecirculation Rates) 6 gpm) 45 gpm) 50 gpm) 73 gpm) 58 gpm)

(1) The times listed are those approximated for two recirculations of a <u>full</u> tank with <u>one</u> recirculation pump in operation (using <u>historical</u> recirculation rates). Recirculation times for a partially full tank are directly proportional to the fraction of the tank capacity occupied by the entrained liquid waste (after isolation). Actual recirculation times are determined prior to sampling using actual tank volumes and actual recirculation rates available in the BV-1 Control Room.

Beaver Valley	l	Procedure Number: 1/2-ODC-2.01		
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	ATTACHME Page 2 of RECIRCULATIO	NT B 2 N TIMES		
TABLE 1.2-1b BV-2 RECIRCULATION TIMES	REQUIRED BEFORE	SAMPLING OF	F LIOUID T	DISCHARGE TANKS
TANK DESCRIPTION	ASSET NO.	APPROXIMA (Based on Histo	TE RECIRC	ULATION TIME ⁽¹⁾ ulation Rates)
Liquid Waste Tanks	2LWS-TK21A/21B	11.5 hrs = (10)	,000 gal) (2	2)/(29 gpm)
Steam Generator Blowdown Hold Tanks	2SGC-TK21A/21B	25.8 hrs = (51	,000 gal) (2	2)/(66 gpm)
Steam Generator Blowdown Test Tanks	2SGC-TK23A/23B	9.1 hrs = (18,	000 gal) (2)/(66 gpm)

(1) The times listed are those approximated for two recirculations of a full tank with one recirculation pump in operation (using historical recirculation rates). Recirculation times for a partially full tank are directly proportional to the fraction of the tank capacity occupied by the entrained liquid waste (after isolation). Actual recirculation times are determined prior to sampling using actual tank volumes and actual recirculation rates available in the BV-2 Control Room.

E	Beaver V	alley Po	ower Stat	ion	- Pro	ocedure Numbe 1/2	r: 2-ODC-2.01	
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		INGESTIO	N DOSE CO	MMITMENT	FACTO	RS		
	•							
TABLE 1.3-1								
A _{it} VALUES	FOR THE A	DULT FOR	THE BEAV	ER VALLEY	Y SITE			
(mrem/hr per t	uCi/ml)							
NUCLIDE	BONE	LIVER	<u>T-BODY</u>	THYROID	<u>KIDNEY</u>	<u>LUN</u>	<u>G</u> <u>GI-LLI</u>	
H-3 C-14	0.00E-01 3.13E.04	2.70E-01 6.26E.03	2.70E-01 6.26E.03	2.70E-01 6.26E.03	2.70E-01 6.26E.03	2.70E-0	01 2.70E-01	
Na-24	4.08E 02	4.08E 0	2 4.08E 02					
P-32	4.62E07	2.87E06	1.79E06	0.00E-01	0.00E-01	0.00E-0	01 5.19E06	
Mn-54	0.00E-01 0.00E-01	4.38E03	8.35E02	0.00E-01	1.30E.03	0.00E-0	0 3.21E 02 01 1.34E 04	
Mn-56	0.00E-01	1.10E 02	1.95E01	0.00E-01	1.40E 02	0.00E-0	01 3.52E03	
Fe-55 Fe-59	0.59E02 1.04E03	4.56E 02 2.45E 03	9.38E 02	0.00E-01 0.00E-01	0.00E-01 0.00E-01	6.83E0	2 2.61E 02 2 8.15E 03	
Co-57	0.00E-01	2.10E01	3.50E01	0.00E-01	0.00E-01	0.00E-0	1 5.33E02	•
Co-58 Co-60	0.00E-01 0.00E-01	8.95E01 2.57E02	201E02 5.67E02	0.00E-01 0.00E-01	0.00E-01 0.00E-01	0.00E-0 0.00E-0	1 1.81E03 1 4.83E03	
Ni-63	3.12E04	2.16E03	1.05E03	0.00E-01	0.00E-01	0.00E-0	1 4.51E02	
N1-65 Cu+64	1.27E.02 0.00E-01	1.65E01 1.00E01	7.51E00 4.70E00	0.00E-01 0.00E-01	0.00E-01 2.52E 01	0.00E-0 0.00E-0	1 4.17E02 1 8.53E02	
Zn-65	2.32E 04	7.37E04	3.33E04	0.00E-01	4.93E 04	0.00E-0	1 4.64E04	
Zn-69 Br-83	4.93E 01 0.00E-01	9.43E 01 0.00E-01	6.56E00 4.04E01	0.00E-01 0.00E-01	6.13E01 0.00E-01	0.00E-0 0.00E-0	I 1.42E01 I 5.82E01	
Br-84	0.00E-01	0.00E-01	5.24E01	0.00E-01	0.00E-01	0.00E-0	1 4.11E-04	
Br-85 Rb-86	0.00E-01 0.00E-01	0.00E-01 1.01E 05	2.15E00 4.71E04	0.00E-01 0.00E-01	0.00E-01 0.00E-01	0.00E-0 0.00E-0	1 0.00E-01 1 199E.04	
 Rb-88	0.00E-01	2.90E 02	1.54E02	0.00E-01	0.00E-01	0.00E-0	1 4.00E-09	
Rb-89 Sr-89	0.00E-01 2.22E.04	1.92E 02 0.00E-01	1.35E02 639E02	0.00E-01	0.00E-01	0.00E-0	1 1.12E-11	
	<i>د.دد</i> ار ۲۲	V.V.L-VI	·····	0,00L-01		0.001-0		
Sr-90	5.48E 05	0.00E-01	1.34E05	0.00E-01	0.00E-01	0.00E-0	1 1.58E04	
Sr-91	4.10E 02	0.00E-01	1.65E01	0.00E-01	0.00E-01	0.00E-0	1 1.95E03	
51-92	1.JJE ()Z	0.00E-01	0.72EW	0.00E-01	0.00E-01	0.00E-0	1 3.UNE.U3	
 Y-90	5.80E-01	0.00E-01	1.55E-02	0.00E-01	0.00E-01	0.00E-0	1 6.15E03	
V-91m	5.48E-03	0.00E-01	2.12E-04	0.00E-01	0.00E-01	0.00E-0	1 1.61E-02	

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·		INGESTIO	N DOSE CO	MMITMEN	T FACT	ORS		
Y-91	8.50E00	0.00E-01	2.27E-01	0.00E-01	0.00E-0	0.00E	-01 4.68E03	. <u>_</u>
 Y-92	509E-02	0.00E-01	149E-03	0.00E-01	0.00E-0	0.00F	-01 892E02	
Y-93	1.62E-01	0.00E-01	4.46E-03	0.00E-01	0.00E-0	0.00E	5.12E03	
Zr-95	2.53E-01	8.11E-02	5.49E-02	0.00E-01	1.27E-0	0.00E	-01 2.57E02	
								-
Zr-97	1.40E-02	2.82E-03	1.29E-03	0.00E-01	4.26E-0	3 0.00E	-01 8.73E02	
Nb-95	4.47E00	2.49E 00	1.34E00	0.00E-01	2.46E0	0 0.00E	-01 1.51E04	
Nb-97	3.75E02	9.49E-03	3.46E-03	0.00E-01	1.11E-0	2 0.00E	-01 3.50E01	

	В	eaver V	alley Po	wer Stat	tion	Proce	Procedure Number: 1/2-ODC-2.01		
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		-	INGESTION	V DOSE CO	MMITMENT	FACTORS	5		
	TABLE 1.3-1								
ĺ	A _{it} VALUES F	OR THE A	DULT FOR	THE BEAV	ER VALLEY	Y SITE			
	(mrem/nr per u			TDODY	TUNDOD		T T T		r
	<u>NUCLIDE</u> Ma 99	BONE	1.05E.02	<u>1-BODY</u>		2 29E 02		$\frac{NG}{242E02}$	ļ
	To-99m	8.97E-03	2.54E-02	3.23E-01	0.00E-01	2.38E 02 3.85E-01	1.24E-0	02 1.50E 01	
	To-101	9.23E-03	1.33E-02	1.30E-01	0.00E-01	2.39E-01	6.79E-	03 4.00E-14	-
	Ru-103	4.51E00	0.00E-01	1.94E 00	0.00E-01	1.72E01	0.00E-(01 5.26E.02	
	Ru-105 Ru-106	3.75E-01	0.00E-01	1.48E-01 8.48E.00	0.00E-01	4.85E 00	0.00E-0	$\begin{array}{ccc} 01 & 2.29 \pm 02 \\ 1 & 4.34 \pm 03 \end{array}$	
			0.0012-01	0.4012.00	0.001-01	1.291.02	0.0014	JI 4.94£03	-
	Ag-110m	9.48E-01	8.77E-01	5.21E-01	0.00E-01	1.72E 00	0.00E-(01 3.58E 02	
	Sb-124 Sb-125	7.87E00 5.03E00	1.49E-01 5.62E-02	3.12E00 1.20E00	1.91E-02 5.11E-03	0.00E-01 0.00E-01	6.13E0 3.88E0	0 2.23E 02 0 5.54E 01	
									-
	Te-125m	2.57E 03	9.30E 02	3.44E 02	7.72E 02	1.04E 04	0.00E-0	01 1.03E 04	
	Te-127m	6.49E 03 1.05E 02	2.32E 03 3.78E 01	7.90E 02 2.28E 01	7.81E 01	4.29E 02	0.00E-0 0.00E-0	01 2.17E.04 01 8.32E.03	
				********					-
	Te-129m Te-129	1.10E04 301E01	4.11E03 1.13E01	1.74E03 7.33E00	3.78E03 231E01	4.60E 04 1.26E.02	0.00E-0)1 5.55E04	
	Te-131m	1.66E 03	8.10E 02	6.75E 02	1.28E 03	8.21E03	0.00E-0	01 8.05E04	
		1.0077.01	7 001 00	5 0 CD 00	1.6573.03	0.075.01	0.007		-
	Te-131 Te-132	1.89E 01 2.41E 03	7.88E 00 1.56E 03	5.96E00 1.47E03	1.55E 01 1.72E 03	8.27E01 1.50E04	0.00E-0 0.00E-0)1 2.67E00)1 7.39E04	
	Te-134	3.10E 01	2.03E 01	1.25E01	2.71E01	1.96E 02	0.00E-0)1 3.44E-02	_
	 L120	1 10 E 02	102E02	335502	263E05	2 10 E 02	0.00E.0	161601	
	I-129 I-130	2.75E01	8.10E 01	3.20E 01	6.87E 03	1.26E 02	0.00E-0	01 6.97E01	
	1-131	1.51E 02	2.16E 02	1.24E 02	7.08E 04	3.71E02	0.00E-0)1 5.70E01	-
	 I-132	7.37E 00	1.97E01	6.90E00	6.90E 02	3.14E01	0.00E-0	01 3.71E00	
	I-133	5.16E01	8.97E01	2.74E01	1.32E04	1.57E02	0.00E-0	01 8.06E 01	
	1-1 <i>7</i> .4	J.0JEW	1.001501	5.741500	1.01E V2	1.006.01	0.002-0	/1 9.12E-U3	-
	I-135	1.61E01	4.21E01	1.55E01	2.78E 03	6.76E01	0.00E-0	01 4.76E 01	
	Cs-134 Cs-136	2.98E 05 3 12E 04	7.09E05 123E05	5.79E05 8.86E04	0.00E-01 0.00E-01	2.29E05 685E04	7.61E0 9.39E0	4 1.24E04 3 1.40E04	
									-
	Cs-137	3.82E 05	5.22E 05	3.42E 05	0.00E-01	1.77E05	5.89E0	4 1.01E04	
	Cs-138	2.04E 02	5.22E.02	2.59E02	0.00E-01	3.84E02	<i>3</i> .79ЕО	1 2.23E-03	

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	Beaver V	valley Po	ower Sta	tion		Procedure Num	ber: /2-OD	C-2.01	
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		INGESTIO	N DOSE CC	MMITMEN	T FACTO	DRS			
Ba-139	9.69E-01	6.90E-04	2.84E-02	0.00E-01	6.45E-04	4 3.92E	-04	1.72E 00	
Ba-140 Ba-141 Ba-142	2.03E 02 4.71E-01 2.13E-01	2.55E-01 3.56E-04 2.19E-04	1:33E01 1:59E-02 1:34E-02	0.00E-01 0.00E-01 0.00E-01	8.66E-02 3.31E-04 1.85E-04	2 1.46E 2.02E 1.24E	-01 -04 -04	4.18E 02 2.22E-10 3.00E-19	
La-140 La-142 Ce-141	1.51E-01 7.71E-03 2.63E-02	7.59E-02 3.51E-03 1.78E-02	2.01E-02 8.74E-04 2.02E-03	0.00E-01 0.00E-01 0.00E-01	0.00E-01 0.00E-01 8.26E-03	0.00E 0.00E 0.00E	-01 -01 -01	5.57E 03 2.56E 01 6.80E 01	
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Be	eaver V	alley Po	wer Stat	ion	Procee	iure Number: 1/2-C	DDC-2.01
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TABLE 1.3-1							
A _{it} VALUES F((mrem/hr per u(OR THE AL Ci/ml)	DULT FOR	THE BEAV	ER VALLEY	' SITE		
NUCLIDE	BONE	LIVER	T-BODY	THYROID	<u>KIDNEY</u>	LUNG	<u>GI-LLI</u>
Ce-143 Ce-144 Pr-143	4.64E-03 1.37E 00 5.54E-01	3.43E 00 5.73E-01 2.22E-01	3.79E-04 7.36E-02 2.75E-02	0.00E-01 0.00E-01 0.00E-01	1.51E-03 3.40E-01 1.28E-01	0.00E-01 0.00E-01 0.00E-01	1.28E 02 4.64E 02 2.43E 03
 Pr-144	1.81E-03	7.53E-04	9.22E-05	0.00E-01	4.25E-04	0.00E-01	2.61E- 10
Nd-147 W-187	3.79E-01 2.96E 02	4.38E-01 2.47E 02	2.62E-02 8.65E 01	0.00E-01 0.00E-01	2.56E-01 0.00E-01	0.00E-01 0.00E-01	2.10E 03 8.10E 04
 Nn-239	290F-02	2.85F-03	1 57E-03	0.00F-01	8 90E 03		5 85E M









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Unit 1/2

1/2-ODC-2.02

ODCM: GASEOUS EFFLUENTS

Document Owner Manager, Nuclear Environmental & Chemistry

Revision Number	2
Level Of Use	In-Field Reference
Safety Related Procedure	Yes
Effective Date	08/30/06

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	82	Complia	DV-1/2 Wolffor Alarm Selpoint Determination	
	0.2	821	Dose Rate Due To Noble Gases	
	•	827	Dose Rate Due To Padioiodines And Particulates	
	83	Compli	iance With 10 CEP 50 Dose Limits (ODCM CONTROLS 2, 11, 2, 2, And 2	2 11 2 2)
	0.5	(Gaseo	nance with 10 CrK 50 Dose Linnis (ODCW CONTROLS 5,11,2,2 And .).11.2.5) AA
		831	Dose Due To Noble Gases	
		827	Dose Due To Padioiodines And Particulator	
	81	6.5.2 Gasaon	Dose Due To Radioloumes And Farticulates	
	0.4		DV 1 Gazoous Dadwasta System Components	
		0.4.1 010	DV-1 Gaseous Radwaste System Components	07
		0.4.2	D v -2 Gaseous Rauwasie System Components	08

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Deave			1/2-ODC-2.02	<u> </u>
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ATTACHMENT K	CONTINUOUS RELEASE DEPOSITION PAI	RAMETER	S(0-5 MILES)	108
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1.0 <u>PURP</u>	<u>OSE</u>			
1.1 This pr followi	ocedure provides the calculational methodology to ing release parameters.	be used for det	ermination of the	
1.1.1 Ga	aseous effluent monitor alarm setpoints			
1.1.2 Ga	aseous effluent dose rate calculations			
1.1.3 Ga	aseous effluent dose calculations			
1.2 This pr	ocedure also provides information related to the fo	ollowing:		
1.2.1 Ga	aseous Radwaste Treatment System.			
1.2.2 Sit	te Boundary used for gaseous effluents.			
1.3 Prior to old OD	o issuance of this procedure, these items were locat OCM.	ted in Section 2 a	and Section 5 of the	
2.0 <u>SCOP</u>	E			
2.1 This pr qualifie	ocedure is applicable to all station personnel (inclued to perform activities as described and referenced	uding subcontrac 1 in this procedu	tors) that are re.	
3.0 <u>REFE</u>	RENCES AND COMMITMENTS			
3.1 <u>Refere</u>	nces			
3.1.1 Re	ferences for BV-1 Gaseous Effluent Monitor Setpo	oints	1	
3.1.1.1	Beaver Valley Power Station, Appendix I Anal 412; Table 2.1-3	ysis - Docket No	o. 50-334 and 50-	
3.1.1.2	Beaver Valley Power Station, Unit 2 FSAR, Ta	able 11.3-1		
3.1.1.3	BVPS Specification No. BVS 414, Table V Nu Table 3, and Figure 2, May 30, 1974	clide Data,; Tab	le 1 and Figure 1,	
3.1.1.4	Calculation Package No.ERS-SFL-85-031, Unit Efficiency Data	t 1 Gaseous Effl	uent Monitor	
3.1.1.5	Calculation Package No. ERS-HHM-87-014, U Alarm Setpoint Determinations	Init 1/Unit 2 OD	CM Gaseous	
3.1.1.6	Calculation Package No ERS-ATL-87-026, BV	PS-1 and BVPS-	2 ODCM T Factor	

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3.1.1.7	Letter ND1SHP:776, dated February 12, 1988, BV Appendix B	PS-1 ODCN	I Table 2.2-2,
3.1.1.8	Stone and Webster Calculation No. UR(B)-262, G Containment Vacuum Pumps	aseous Relea	ases From
3.1.2 Re	ferences for BV-2 Gaseous Effluent Monitor Setpoint	S	
3.1.2.1	Calculation Package No.ERS-SFL-86-026, Unit 2 J	DRMS Isoto	pic Efficiencies
3.1.2.2	Calculation Package No. ERS-HHM-87-014, Unit Alarm Setpoint Determinations	1/Unit 2 OE	CM Gaseous
3.1.2.3	Beaver Valley Power Station, Unit 2 FSAR; Table	11.3-2	
3.1.2.4	Calculation Package No. ERS-ATL-87-026, BVPS Factor Justification	-1 and BVP	S-2 ODCM T
3.1.2.5	Stone and Webster Calculation No. UR(B)-262, Ga Containment Vacuum Pumps	aseous Relea	ases From
3.1.3 Re	ferences Used for other portions of this procedure		
3.1.3.1	NUREG-0133, Preparation of Radiological Effluer Nuclear Power Plants	nt Technical	Specifications for
3.1.3.2	NUREG-1301, Offsite Dose Calculation Manual G Effluent Controls for Pressurized Water Reactors (Supplement No. 1)	uidance; Sta Generic Lett	andard Radiological er 89-01,
3.1.3.3	NUREG-0324; XOQDOQ Program for the Meteor Releases at Nuclear Power Stations, September 197	ological Eva 77	luation of Routine
3.1.3.4	NUREG-0017; Calculation of Releases of Radioac Liquid Effluents form PWR's Revision 0.	tive Materia	ls in Gaseous and
3.1.3.5	Regulatory Guide 1.109, Calculation of Annual Do Releases of Reactor Effluents for the Purpose of In 1977	ose to Man fr plementing	rom Routine Appendix I, April
3.1.3.6	NUREG-0172, Age - Specific Radiation Dose Con Chronic Intake	nmitment Fa	ctors for a one-year
3.1.3.7	1/2-ADM-1640, Control of the Offsite Dose Calcul	lation Manu	al
3.1.3.8	1/2-ADM-0100, Procedure Writers Guide		
3.1.3.9	NOP-SS-3001, Procedure Review and Approval		

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3.1.3.10	CR03-04830, Containment Vacuum Pump Repl Term. CA-03, Revise Unit 1 Containment Vacu procedure 1/2-ODC-2.02, Attachment A, Table	acement Increa uum Pump Sou 2.1-1a.	ses ODCM Source rce-Term in ODCM		
3.1.3.11	CR 05-01169, Chemistry Action Plan for Transi CA-16, Revise procedure 1/2-ODC-2.02 to char Manager, Radiation Protection to Manager, Nuc	ition of RETS, nge document c clear Environm	REMP and ODCM. owner from ental & Chemistry.		
3.1.3.12 Unit 1 Technical Specification Amendment No. 275 (LAR 1A-302) to License No. DPR-66. This amendment to the Unit 1 license was approved by the NRC on July 19, 2006.					
3.1.3.13 Vendor Calculation Package No. 8700-UR(B)-223, Impact of Atmospheric Containment Conversion, Power Uprate, and Alternative Source Terms on the Alarm Setpoints for the Radiation Monitors at Unit 1.					
3.1.3.14	Engineering Change Package No. ECP-04-0440	, Extended Pov	ver Uprate.		
3.1.3.15	CR 06-04908, Radiation Monitor Alarm Setpoir ODCM procedure 1/2-ODC-2.02 to update the a radiation monitor for incorporation of the Extend Amendment No. 275.	nt Discrepancie alarm setpoints ded Power Upr	s. CA-03; revise of gaseous effluent ate per Unit 1 TS		
3.2 , <u>Comm</u>	itments	· ,			
3.2.1 No	ne				
4.0 <u>RECO</u>	RDS AND FORMS				
4.1 <u>Record</u>	<u>s</u>				
4.1.1 An retr nur	y calculation supporting ODCM changes shall be d rievable document (e.g., letter or calculation packag nber.	ocumented, as ge) with an appr	appropriate, by a ropriate RTL		
4.2 Forms	· · · ·				
4.2.1 No	ne .				
5.0 PRECA	AUTIONS AND LIMITATIONS				

5.1 ODCM CONTROLS applicable to dose rate apply to the site. The site dose rate is due to the summation of releases from both units.

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5.2 ODCM CONTROLS applicable to accumulated dose apply individually to each unit.

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5.3 Re	eleases at the Beaver Valley site may be ground level or ele	evated in natu	ıre.		
5.3.1	All ground level releases are identified with a specific un dose rate and dose attributed to that unit.	nit in the dete	ermination of site		
5.3.2	Elevated releases from both units are considered to original system and are discharged from a common release point, the BV-1 cooling tower.	nate from a s , the Process	shared radwaste Vent, at the top of		
5.4 At via Ot sp att	BV-1 and BV-2, the dose from continuous and batch (Gas a the shared radwaste system (Process Vent) are normally a ther continuous and batch releases via non-shared radwaste ecific unit. The only exception is a containment purge via tributed to a specific unit.	Waste Stora apportioned e systems sha the Process V	age Tanks) releases equally to the units. Il be attributed to a Vent which shall be		
5.5 Th sy	nere is a difference in setpoint terminology presentations of stems of BV-1 and BV-2.	the radiatior	n monitoring		
5.5.1	Where HIGH and HIGH-HIGH terminology are used for ALERT and HIGH terminology are used for the BV-1 E BV-2 monitors.	the BV-1 V berline SPIN	ictoreen monitors, G monitors and the		
5.5.2	Also, BV-2 setpoints are presented in uCi/cc rather than difference is due to BV-2 software which applies a conve data (cpm). The user is cautioned that the uCi/cc present for the specific isotopic mix used in the determination of practice, setpoints determined for a calculated mix are co determined on analysis prior to release will be correct for but the indicated uCi/cc value may differ from the actual	cpm as in BV ersion factor tation is tech: the conversion prect for that r properly cover value.	V-1. This to the BV-2 raw nically correct only on factor. In t mix. Setpoints ntrolling dose rate,		
5.5.3	All BV-1 and BV-2 effluent monitors specified herein has established at 60 percent of the site limit, and Lower Ala percent of the site limit.	ave Upper Al rm Setpoints	arm Setpoints established at 30		
5.6 Ai in pu	release may be batch or continuous in nature. Batch refers radionuclide concentrations or flow, such as releases from rges and ventings of systems or components with infrequer	to releases th gas storage t nt use.	nat are intermittent anks, containment		
5.6.1	Batch releases may be due to operational variations whic greater than 50% of the releases normally considered as o these sources during normal operation, including anticipa defined as those which occur for a total of 500 hours or le more than 150 hours in any quarter.	h result in ra continuous. ated operation ess in a caler	dioactive releases Batch releases from nal occurrences, are idar year, but not		
5.6.2	The batch relative concentration value has been calculate guidelines provided in NUREG-0324 ^(3.1.3.3) for short-term	ed in accorda n release.	nce with the		

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5.6.3 IF simultaneous batch and continuous release of lowest setpoint obtained according to Sections 8	ut of one vent occurs, 3.1.1.1 through 8.1.3.2	<u>THEN</u> use the		

- 5.7 This procedure also contains information that was previously contained in Section 5 of the previous BV-1 and BV-2 Offsite Dose Calculation Manual.
 - 5.7.1 In regards to this, the site boundary for gaseous effluents was included in this procedure.
 - 5.7.2 The Site Boundary for Gaseous Effluents is shown in ATTACHMENT P Figure 5-1.

6.0 ACCEPTANCE CRITERIA

- 6.1 All changes to this procedure shall contain sufficient justification that the change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR 50, and not adversely impact the accuracy of effluent dose or alarm setpoint calculation. ^(3.1.3.2)
 - 6.1.1 All changes to this procedure shall be prepared in accordance with 1/2-ADM-0100^(3.1.3.8) and 1/2-ADM-1640. ^(3.1.3.7)
 - 6.1.2 All changes to this procedure shall be reviewed and approved in accordance with NOP-SS-3001^(3.1.3.9) and 1/2-ADM-1640. ^(3.1.3.7)

7.0 **PREREQUISITES**

7.1 The user of this procedure shall be familiar with ODCM structure and content.

8.0 <u>PROCEDURE</u>

8.1 Alarm Setpoints

8.1.1 BV-1 Monitor Alarm Setpoint Determination

ODCM CONTROL 3.11.2.1 require that the dose rate in unrestricted areas due to noble gas radionuclides in the gaseous effluent released from the site shall be limited to \leq 500 mrem/yr to the total body and to \leq 3000 mrem/yr to the skin.

This section describes the methodology used to maintain the release of noble gas radionuclides within ODCM CONTROL 3.11.2.1 for the site, and determines monitor setpoints for BV-1.

The methodologies described in Section 8.1.1.2, 8.1.2.2, and 8.1.3.2 provide an alternate means of determining monitor alarm setpoints that may be used when an analysis is performed prior to release.

Control of the site dose rate limit due to noble gases is shown in the following Table. Dose rate control is exercised through a total of 8 effluent stream monitors, of which 3 are located at BV-1 (alternates exists for these monitors), and 5 are located at BV-2. As previously noted, BV-1 and BV-2 elevated releases are via the PV-1/2 Process Vent.

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Monitor Setpoint Sp	ecifications Based On Fraction	Of Site Lin	<u>nit</u>	
UNIT RELEASE POINT MONITOR NO.	EASE POINT FRACTION OF S		SITE LIMITING DOSE RATE	
	Upper Alarm	Lower A	Alarm	
(VV-1) Unit 1, Auxiliary Buildi	ng Vent			
Pri.: RM-1VS-101B or	60% (HIGH-HIGH)	30% (H	IGH)	
Alt.: RM-1VS-109 (5)	60% (HIGH)	30% (A	LERT)	
(CV-1) Unit 1, Rx Containment	SLCRS Vent			
Pri.: RM-1VS-107B or	60% (HIGH-HIGH)	30% (H	IGH)	
Alt.: RM-1VS-110 (5)	60% (HIGH)	30% (A	LERT)	
(PV-1/2), Unit 1/2, Gaseous Wa	ste/Process Vent			
Pri.: RM-1GW-108B or	60% (HIGH-HIGH)	30% (H	IGH)	
Alt.: RM-1GW-109 (5)	60% (HIGH)	30% (A	LERT)	
(CV-2), Unit 2, SLCRS Filtered	Pathway			
2HVS-RQ109E	60% (HIGH)	30% (A	LERT)	
(VV-2), Unit 2, SLCRS Unfilter	ed Pathway			
2HVS-RQ101B	60% (HIGH)	30% (A	LERT)	
(WV-2) Unit 2 Waste Gas Stor	age Vault Vent			
2RMQ-RQ303B	60% (HIGH)	30% (A)	LERT)	
(DV-2) Unit 2 Decontamination	n Building Vent	× ×	,	
2RMO-RO301B	60% (HIGH)	30% (A)	LERT)	
		2270 (12		
(UB-2), Condensate Polishing B	uliding vent	300/ (1)		
2HVL-KQ112B	0078 (111011)	50% (A	LENI	

With the monitor setpoints based on fractions of the site limit as defined above, the following criteria may be applied to determine that the dose rate due to noble gas released from the site complies with ODCM CONTROL 3.11.2.1:

- The site dose rate is 30% of the site dose rate limit when any monitor is indicating a Lower Alarm.
- The site dose rate is 60% of the site dose rate limit when any two monitors are indicating Lower Alarms.
- The site dose rate is 60% of the site dose rate limit when any monitor is indicating an Upper Alarm.
- The site dose rate is 90% of the site dose rate limit when any monitor is indicating an Upper Alarm and any other monitor is indicating a Lower Alarm.

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8.1.1	.1 <u>BV-1 Setpoint Determination</u> <u>1 Ground Releases</u>	Based On A Calculat	ed Mix Fo	or VV-1 an	d CV-
	The table below gives the calcul ncpm, and provides the equivale limiting site dose rate limit (i.e.; The monitor HIGH-HIGH alarm monitor HIGH alarm setpoint al condition shall be as follows:	lated monitor count rat ent monitor indication 500 mrem/yr Total B n setpoint above backg pove background (HSI	te above ba associated order or 30 pround (HH P) for each	ackground (with the m 000 mrem/y ISP), and th vent and op	(CR), in ost rr skin). ne perational
	BV-1 ALARM SET	OINTS FOR GROUN	ID RELEA	SES	
			cpm AB	OVE BACK	GROUND
				60%	30%
		(P)PRIMARY*		SITE	SITE
		MONITOR		LIMIT	LIMIT
		(A) ALTERNATE		UPPER	UPPER
		MONITOR	<u>CR</u>	<u>ALARM</u>	<u>ALARM</u>
	• Continuous Release Via The BV-1	(P)RM-1VS-101B	3000	≤ 1800	≤ 900
	Auxilary Building Vent (VV-1)	(A)RM-1VS-109(5)	1470	≤ 879	≤ 440
	Batch Release Of Containment	(P)RM-1VS-101B	1200	< 718	< 359
	Purge Via The BV-1 Auxiliary Building Vent (VV-1)	(A)RM-1VS-109(5)	1430	≤ 860	≤ 430
•	• Continuous Release Via The BV-1	(P)RM-1VS-107B	6440	≤ 3870	≤ 1930
	Rx Containment/SLCRS Vent (CV-1)	(A)RM-1VS-110(5)	3380	≤ 2030	≤ 1010
	Batch Release Of Containment	(P)RM-1VS-107B	12,700	< 7630	< 3810
	Purge Via The BV-1 Rx Containment/SLCRS Vent (CV-1)	(A)RM-1VS-110(5)	6660	≤ 4000	≤ 2000
	*IF the primary monitor is out of serv the respective alternate monitor. Th	ice, <u>THEN</u> ODCM CC e alternate setpoints sh	ONTROL 3 all be utili	3.3.3.10 is r zed.	net for
	The setpoints were determined using t	he following condition	s and info	rmation:	
	• Source terms given in ATTACHM were derived from Stone & Webstr 0017), ^(3.1.3.4) and computer code DI sources). ATTACHMENT A Table which are not used in site noble ga	ENT A Table 2.1-1a. er computer code GAS RAGON 4 (for the cor le 2.1-1a does not inclus s dose rate calculation	The gased 1BB (simi- ttainment v ude particu s.	ous source t ilar to NUR vacuum pur ilates and io	erms ÆG- np odines,
	• Onsite meteorological data for the	period January 1, 1970	5 through I	December 3	1, 1980.

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• Discharge flow rate of 62,000 cfm for a VV-1 Continuous Release.

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• Discha This is	arge flow rate of 92,000 cfm for a VV-1 Batch s comprised of 30,000 cfm from the containm	n Release of C ent purge plus	ontainment Purge. 62,000 cfm for VV-1
• Discha	arge flow rate of 49,300 cfm for a CV-1 Conti	nuous Release	5.
• Discha This is	arge flow rate of 56,800 cfm for a CV-1 Batch s comprised of 7,500 cfm from the containment	n Release of C nt purge plus 4	ontainment Purge. 49,300 cfm for CV-1.
• Inform	nation listed under References for BV-1 Gased	ous Effluent M	Ionitor Setpoints.
The calcul monitor se	lation method given in Sections 8.1.1.1.1 thro etpoints for the following operational condition	ugh 8.1.1.1.7 · ns:	was used to derive the
• Contin	nuous release via VV-1.		
• Contir	nuous release via CV-1.		
• Batch	release of BV-1 Containment Purge via VV-1		
• Batch	release of BV-1 Containment Purge via CV-2	·.	
8.1.1.1.1	BV-1 Mix Radionuclides	·	
	The "mix" (noble gas radionuclides and conwas determined as follows:	nposition) of t	he gaseous effluent
	• The gaseous source terms that are represented gaseous effluent were selected. Gaseou of the noble gas radionuclides in the efflort obtained from ATTACHMENT A Table	sentative of the s source terms uent. Gaseou e 2.1-1a.	e "mix" of the are the radioactivity s source terms can be
	• The fraction of the total radioactivity in noble gas radionuclide "i" (Si) for each the gaseous effluent was determined by:	the gaseous el individual nob	ffluent comprised of ele gas radionuclide ir
	$S_i = \frac{A_i}{\sum_i A_i}$		[2.1(1)-1]
	where:		
	A_i = The total radioactivity or radioactivity radionuclide "i" in the gaseous effluer	concentration	of noble gas

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8.1.1.	.1.2 <u>BV-1 Ma</u>	<u>ximum Accep</u>	table Release Ra	te (Whole Bod	ly Exposure)
	The maxi radionucl limit was	mum acceptabl ides in the gase calculated by:	e total release rat cous effluent (Q _t)	e (uCi/sec) of a based upon the	ll noble gas whole body exposure
	$Q_t = \frac{1}{(X/t)}$	$\frac{500}{2)\sum_{i}K_{i}S_{i}}$			[2.1(1)-2]
	where:				
	(X/Q) _{vv}	The higl of efflue unrestric ATTAC	nest calculated an ents released via V cted area boundar HMENT F Table	nual average re /V-1 for any ard y for all sectors 2.2-5.	lative concentration ea at or beyond the (sec/m ³) from
		= 1.03E-4	sec/m ³ for contin	uous releases.	
	(X/q) _{vv}	= The high effluents unrestric ATTAC	nest calculated sho s released via VV cted area boundar HMENT M Table	ort term relative -1 for any area y for all sectors e 2.3-36.	e concentration of at or beyond the (sec/m ³) from
ч. П		= 3.32E-4	sec/m ³ for batch	release of conta	inment purge.
	(X/Q) _{cv}	= The high of efflue unrestric ATTAC	nest calculated an ints released via C ited area boundar HMENT F Table	nual average re CV-1 for any are y for all sectors 2.2-4.	lative concentration ea at or beyond the (sec/m ³) from
		= 9.24E-5	sec/m ³ for contin	uous releases.	
	(X/q) _{ev}	= The high effluents unrestric ATTAC	nest calculated sho s released via CV- ted area boundary HMENT M Table	ort term relative -1 for any area a y for any sector e 2.3-35.	e concentration of at or beyond the s (sec/m ³) from
		= .3.08E-4	sec/m ³ for batch	release of conta	inment purge.
	Ki	 The tota from nol ATTAC 	l whole body dose ole gas radionucli HMENT G Table	e factor due to g de "i" (mrem/ye 2.2-11.	gamma emissions ear/uCi/m ³) from
	Si	= From eq	uation [2.1(1)-1]	above.	

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8.1.1.1.3	BV-1 Maximum Acceptable Release Ra	te (Skin Expo	sure)
	Qt was also determined based upon the ski	n exposure lin	nit by:
	$Q_{t} = \frac{3000}{(X/Q)\sum_{i} (L_{i} + 1.1M_{i}) S_{i}}$		
	where:		
	L _i = The skin dose factor due t radionuclide "i"(mrem/yea Table 2.2-11.	o beta emission ar/uCi/m ³) from	ns from noble gas n ATTACHMENT G
	M _i = The air dose factor due to radionuclide "i"(mrad/yea Table 2.2-11.	gamma emissi r/uCi/m ³) from	ons from noble gas ATTACHMENT G
	1.1 = The ratio of the tissue to a energy range of the photon	ir absorption c ns of interest, (coefficients over the (mrem/mrad).
	(X/Q) = Same as in Section 8.1.1.1	.2.	
8.1.1.1.4	BV-1 Maximum Acceptable Release Rat	te (Individual	Radionuclide)
	The maximum acceptable release rate (uCi the gaseous effluent (Qi) for each individua gaseous effluent was determined by:	i/sec) of noble al noble gas ra	gas radionuclide "i" in dionuclide in the
	$Q_i = S_i Q_t$		[2.1(1)-4]
	NOTE: Use the lower of the Q_t values obt 8.1.1.1.3.	ained in Section	on 8.1.1.1.2 and
8.1.1.1.5	BV-1 Maximum Acceptable Concentrat	ions (Individu	<u>ıal Radionuclide)</u>
	The maximum acceptable radioactivity conradionuclide "i" in the gaseous effluent (C_i radionuclide "i" in the gaseous effluent wa	ncentration (uC)) for each indiv s determined b	Ci/cc) of noble gas vidual noble gas by:
	$C_i = \frac{2.12E - 3 Q_i}{F}$ where:		[2.1(1)-5]
	F = The maximum acceptable e release (cfm) as listed in Se	effluent flow ra	ate at the point of
	2.12E-3 = Unit conversion factor (60)	sec/min x 3.53	E-5 $\mathrm{ft}^3/\mathrm{cc}$).

Title

8.1.1.1.6 BV-1 Monitor Count Rate

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The calculated monitor count rate (ncpm) above background attributed to the noble gas radionuclide. CR was determined by:

$$CR = \sum_{i} C_{i} E_{i}$$
 [2.1(1)-6)]

where:

 E_i = The detection efficiency of the monitor for noble gas radionuclide "i" (cpm/uCi/cc) from ATTACHMENT B Table 2.1-2a.

8.1.1.1.7 BV-1 Monitor Setpoints

The monitor alarm setpoints above background were determined as follows:

• The monitor HIGH-HIGH Alarm Setpoint above background (ncpm) was determined by:

HHSP =
$$0.60 \times CR$$
 [2.1(1)-7]

• The monitor HIGH Alarm Setpoint above background (ncpm) was determined by:

$$HSP = 0.30 \text{ x CR}$$
 [2.1(1)-8]

NOTE: The values 0.60 for the HHSP and 0.30 for the HSP are fractions of the total radioactivity concentration that may be released via the monitored pathway to ensure that the site boundary limit is not exceeded due to simultaneous releases from both units.

8.1.1.2 <u>BV-1 Setpoint Determination Based On Analysis Prior To Release For VV-1</u> and CV-1 Ground Releases

When the setpoints established using "the calculated mix" for ground releases do not provide adequate flexibility for operational needs, the method described below may be used in lieu of that set forth in Step 8.1.1.1. In this case, the results of sample analysis are used to determine the source term "mix." This calculational method applies to gaseous releases via VV-1 and CV-1 when determining the setpoint for the maximum acceptable discharge flow rate and the associated HIGH-HIGH Alarm Setpoint based on this flow rate during the following operational conditions:

- Batch release of Containment Purge via VV-1.
- Batch release of Containment Purge via CV-1.
- 8.1.1.2.1 BV-1 Maximum Acceptable Release Rate

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The maximum acceptable discharge flow rate from VV-1 and CV-1 during purging is determined as follows:

• The maximum acceptable gaseous discharge flow rate (f) from VV-1 and CV-1 (cfm) during purging based upon the whole body exposure limit is calculated by:

$$f = \frac{1.06 \text{ S T}}{(X/q)\sum_{i} K_{i} C_{i}}$$
[2.1(1)-17]

where:

S

Т

1.06 = 500 mrem/yr x 2.12E-3

500 mrem/yr = dose rate limit

2.12E-3 = unit conversion factor = $(60 \text{ sec/min } \times 3.53\text{E-5 } \text{ft}^3/\text{cc})$

- Percent of site dose rate released via this pathway. Up to 60% of the site dose rate is permissible for one release point under the alarm set point rules of Section 8.1.1.
- = Maximum valve for T is 16 based on the limiting restriction in ODCM CONTROL 3.11.2.1 where the dose rate for a containment purge may be averaged over a time period not to exceed 960 minutes. (As containment air volume change time period is 60 minutes; T = 960/60 = 16).^(3.1.1.6)
- $(X/q)_{vv}$ = The highest calculated short term relative concentration of effluents released via VV-1 for any area at or beyond the unrestricted area boundary for all sectors (sec/m³) from ATTACHMENT M Table 2.3-36.

 $= 3.32\text{E}-4 \text{ sec/m}^3$

(X/q)_{cv} = The highest calculated short term relative concentration of effluents released via CV-1 for areas at or beyond the unrestricted area boundary for all sectors (sec/m³) from ATTACHMENT M Table 2.3-37.

 $= 3.08 \text{E} - 4 \text{ sec/m}^3$

 K_i

The total whole body dose factor due to gamma emissions from noble gas radionuclide "i" (mrem/year/uCi/m³) from ATTACHMENT G Table 2.2-11.

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C _i = The undiluted radioactivity conc radionuclide "i" in the gaseous s analysis of the gas to be released	entration o ource (uCi/	f noble gas (cc) as determined by
• The flow rate (f) is also determined based up follows:	on the skin	exposure limit as
$f = \frac{6.36 \text{ S T}}{(X/q) \sum_{i} (L_{i} + 1.1 \text{ M}_{i}) C_{i}}$		[2.1(1)-18]
where:		
6.36 = 3000 mrem/yr x 2.12E-3		
3000 mrem/yr = dose rate limit		
2.12E-3 = unit conversion = (60 sec/min x 3)	factor 53E-5 ft ³ /c	cc)
L _i = The skin dose factor due to beta emir radionuclide "i" (mrem/year/uCi/m ³) 2.2-11.	ssions from from ATT	n noble gas ACHMENT G Table
$M_i = The air dose factor due to gamma enradionuclide "i" (mrad/year/uCi/m3)2.2-11.$	nissions fro from ATT	m noble gas ACHMENT G Table
(X/q) = Same as above.		
• The flow rate (f) is determined by selecting the values based on the whole body exposure lime shown above. The actual purge flow rate (cfi below this calculated (f) value or the discharged below the selection of the discharged selection of the discharg	he smaller of hit, or the sl m) must be ge cannot b	of the calculated (f) kin exposure limit maintained at or e made from the vent.
8.1.1.2.2 BV-1 Monitor Setpoints		
The monitor alarm setpoints above background	d are detern	nined as follows:
• The calculated monitor HIGH-HIGH Alarm S (ncpm) attributed to noble gas radionuclides in the second secon	Setpoint ab	ove background ed by:
$HHSP = \frac{f \sum_{i} C_{i} E_{i}}{F'}$ where:		[2.1(1)-19]
f = The maximum acceptable gaseous di determined in Section 8.1.1.2.1.	scharge flo	w rate (cfm)

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P

i.

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F' = The m of rele	aximum actual or design efflue ease.	nt flow rate	e (cfm) at the point
= 92,000	0 cfm for VV-1		
= 56,800) cfm for CV-1		
C _i = The un "i" in f gas to	ndiluted radioactivity concentra the gaseous source (uCi/cc) as c be released.	tion of nob letermined	le gas radionuclide by analysis of the
$E_i = The determined in the determined in the determined of the complexity of the $	etection efficiency of the monito aCi/cc) from ATTACHMENT I	or for noble B Table 2.1	gas radionuclide "i" -2a.
• When a HIG section, the determined a	GH-HIGH set point has been cal monitor HIGH Alarm Setpoint a as follows:	culated acc above back	ording to this ground (ncpm) is
HSP = HI	HSP x 0.5		[2.1(1)-20]
8.1.2 BV-2 Monitor Alarm Setp	oint Determination		
See Section 8.1.1 for a desc	ription of Monitor Alarm Setpoi	int Determi	nations.

8.1.2.1 <u>BV-2 Setpoint Determination Based On A Calculated Mix For VV-2, CV-2,</u> <u>DV-2, WV-2 and CB-2 Ground Releases.</u>

The table below gives the calculated monitor count rate above background (CR) in ncpm, and provides the equivalent monitor indication (DV) in net uCi/cc associated with the most limiting site dose rate limit (i.e., 500 mrem/yr Total Body or 3000 mrem/yr Skin). The HIGH alarm setpoint (HSP) in uCi/cc above background, and the ALERT alarm setpoint (ASP) in uCi/cc above background for each vent and operational condition shall be as follows:
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	BV2 ALARM SET	POINTS FOR GR	OUND RE	LEASES		
			uCi	/cc ABOV (unless	VE BACKO	ROUND
					60% SITE LIMIT	30% SITE LIMIT
			CR	DV	UPPER	LOWER
		MONITOR	<u>ncpm</u>	<u>Dv</u>	ALARM	ALARM
•	Continuous Release Via The BV-2 SLCRS Unfiltered Pathway (VV-2)	2HVS- RQ101B	8260	3.01E-4	≤ 1.81E-4	≤ 9.04E-5
•	Batch Release Of Containment Purge Via The BV-2 SLCRS Unfiltered Pathway (VV-2)	2HVS-RQ101B	2020	7.39E-5	≤ 4.43E-5	≤2.22E-5
•	Continuous Release Via The BV-2 SLCRS Filtered Pathway (CV-2)	2HVS-RQ109E	4320	2940 μCi/sec	≤ 1770 μCi/sec	≤ 883 μCi/sec
•	Batch Release Of Containment Purge Via The BV-2 SLCRS Filtered Pathway (CV-2)	2HVS-RQ109E	16,400	1130 μCi/sec	≤ 676 µCi/sec	≤ 338 µCi/sec
•	Continuous Release Via The BV-2 Condensate Polishing Building Vent (CB-2)	2HVL-RQ112B	28,900	1.61E-3	≤ 9.63 E- 4	≤ 4.82E-4
•	Continuous Release Via The BV-2 Decontamination Building Vent (DV-2)	2RMQ-RQ301B	56,600	3.15E-3	≤ 1.89E-3	≤ 9.44E-4
•	Continuous Release Via The BV-2 Waste Gas Storage Vault Vent (WV-2)	2RMQ-RQ303B	912,000	2.58E-2	≤ 1.55E-2	≤ 7.74E-3

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	The setpoints were determined using the follow	ving conditions	and information:
	• Source terms given in ATTACHMENT A terms were derived from Stone & Webster NUREG-0017) ^(3.1.3.4) and computer code D vacuum pump sources). ATTACHMENT particulates and iodines, which are not used calculations.	Table 2.1-1b. T computer code RAGON 4 (for A Table 2.1-1b d in site noble ga	hese gaseous source GAS1BB (similar to the containment does not include as dose rate
	• The Containment Building Purge radionucl of determining an alarm setpoint for the SL of the proximity of the contiguous areas.	lide mix was util CRS Unfiltered	lized for the purposes Pathway on the basi
	• The Decontamination Building and Conder exhaust are not expected to be radioactive. determining an alarm setpoint, it is conserv ventilation exhaust at concentrations that w rate limits.	nsate Polishing I However, for p ratively assumed rould result in th	Building ventilation urposes of that Xe-133 is in the e appropriate dose
	• The Waste Gas Storage Vault ventilation ex- radioactive. However, the monitor alarm so the ventilation exhaust radionuclide spectru in the system housed by the waste gas stora ATTACHMENT A Table 2.1-1b under Gas	xhaust is also no etpoint is based um is similar to t uge vault. This s seous Waste Sys	t normally on the assumption th he gaseous inventory pectrum is listed in stem.
	• Onsite meteorological data for the period Ja 1980.	anuary 1, 1976 t	hrough December 31
	• Discharge flow rate of 23,700 cfm for a VV	/-2 Continuous I	Release.
	• Discharge flow rate of 53,700 cfm for a VV Purge. This is comprised of 30,000 cfm from the CV-2.	/-2 Batch Released on the containm	se of Containment ent purge plus 23,70
	• Discharge flow rate of 59,000 cfm for a CV	/-2 Continuous I	Release.
	• Discharge flow rate of 59,000 cfm for a CV Purge. This is comprised of 7,500 cfm from cfm from CV-2.	7-2 Batch Releas n the containme	e of Containment nt purge plus 51,500
	• Discharge flow rate of 30,556 cfm for a CB	-2 Continuous F	Release.
	• Discharge flow rate of 12,400 cfm for DV-2	2 Continuous Re	elease.
	• Discharge flow rate of 2 000 cfm for WV_{-2}	Continuous Rel	

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 Information listed under References for B Setpoints. 	3V-2 Gaseous Eff	luent Monitor			
The calculation method given in Sections 8.1 derive the alarm setpoints for the following o	.2.1.1 through 8.1 perational conditi	.2.1.7 was used to ons:			
• Continuous release via VV-2.					
• Continuous release via CV-2.					
• Batch release of BV-2 Containment Purge	e via VV-2.				
• Batch release of BV-2 Containment Purge	e via CV-2.				
• Continuous release via CB-2.					
• Continuous release via DV-2.					
• Continuous release via WV-2.					
8.1.2.1.1 BV-2 Mix Radionuclides					
The "mix" (noble gas radionuclides and was determined as follows:	l composition) of	the gaseous effluent			
• The gaseous source terms that are regaseous effluent were selected based and volumetric flowrate. Gaseous s noble gas radionuclides in the efflue obtained from ATTACHMENT A T	epresentative of the d on the relative s source terms are the ent. Gaseous sour Fable 2.1-1b.	he "mix" of the tream composition he radioactivity of the ree terms can be			
• The fraction of the total radioactivity noble gas radionuclide "i" (Si) for each the gaseous effluent was determined	y in the gaseous e ach individual nol 1 by:	ffluent comprised of ble gas radionuclide in			
$S_i = \frac{A_i}{\sum_i A_i}$		[2.1(2)-1]			
where:					
A_i = The radioactivity concentration gaseous effluent (for VV-2, CV- A Table 2.1-1b. However, <u>SIN6</u> have a valid source term mix, <u>T</u> concentration is assumed to be 2	of noble gas radio -2 and WV-2) is f <u>CE</u> releases via C <u>HEN</u> the noble ga Xe-133.	onuclide "i" in the from ATTACHMENT B-2 and DV-2 do not is radioactivity			

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8.1.2.1.2	<u>BV-2 Ma</u>	ximum Acceptable Release	Rate (Whole Bod	ly Exposure)
	The maxi radionucl limit was	mum acceptable total release ides in the gaseous effluent (C calculated by:	rate (uCi/sec) of a Q _t) based upon the	ll noble gas whole body exposure
	$Q_t = \frac{1}{(X/C)}$	$\frac{500}{2)\sum_{i}K_{i}S_{i}}$		[2.1(2)-2]
	where:			
	(X/Q) _{vv}	The highest calculated and effluents released via VV- unrestricted area boundary ATTACHMENT F Table	nual average relat -2 for any area at o y for all sectors (s 2.2-5.	ive concentration of or beyond the ec/m ³) from
		= $1.03\text{E-4} \text{ sec/m}^3$ for contin	uous releases.	
	(X/q) _{vv}	The short term relative co VV-2 for any area at or be all sectors (sec/m ³) from A	ncentration of effleyond the unrestrice	uents released via cted area boundary for M Table 2.3-36.
		= 3.32E-4 sec/m ³ for batch f	release of contain	nent purge.
	(X/Q) _{cv}	The highest calculated and effluents released via CV- unrestricted area boundary ATTACHMENT F Table	nual average relation 2 for any area at of y for all sectors (sectors 2.2-4.	ive concentration of or beyond the ec/m ³) from
		= 9.24E-5 sec/m ³ for continu	uous releases.	
	(X/q) _{ev}	 The short term relative concentration CV-2 for any area at or be all sectors (sec/m³) from A 	ncentration of effl eyond the unrestric ATTACHMENT M	uents released via sted area boundary for A Table 2.3-35.
		= $3.08\text{E}-4 \text{ sec/m}^3$ for batch m	elease of contain	nent purge.
	(X/Q) _{cp}	 The highest calculated ann effluents released via CB- unrestricted area boundary ATTACHMENT F Table 	nual average relati 2 for any area at c 7 for all sectors (se 2.2-10.	ve concentration of or beyond the ec/m ³) from
		= $7.35E-5 \text{ sec/m}^3$ for continu	ious releases.	

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	(X/Q) _{dv}		The highest calculated annual ave effluents released via DV-2 for a unrestricted area boundary for all ATTACHMENT F Table 2.2-8.	erage relati ny area at c l sectors (se	ive concentration of or beyond the ec/m^3) from
		=	9.24E-5 sec/ m^3 for continuous re	leases.	
	(X/Q) _{wv}		The highest calculated annual ave effluents released via WV-2 for a unrestricted area boundary for all ATTACHMENT F Table 2.2-9.	erage relati any area at l sectors (se	ve concentration of or beyond the ec/m ³) from
		=	9.24E-5 sec/m ³ for continuous rel	leases.	
	K _i	Ξ	The total whole body dose factor noble gas radionuclide "i" (mrem ATTACHMENT G Table 2.2-11	due to gan /year/uCi/r	nma emissions from n ³)from
	Si	=	From equation [2.1(2)-1].		
8.1.2.1.3	<u>BV-2 M</u>	laxi	<u>mum Acceptable Release Rate (S</u>	kin Expos	<u>ure)</u>
	Q _t was a	ilso	determined based upon the skin exp	posure limi	it by:
	$Q_t = \frac{1}{(X)}$	/Q)	$\frac{3000}{\sum_{i} (L_{i} + 1.1M_{i}) S_{i}}$		[2.1(2)-3]
	where:				
	Li	=	The skin dose factor due to beta e radionuclide "i"(mrem/year/uCi/n Table 2.2-11.	emissions fi n ³) from A'	rom noble gas TTACHMENT G
	M_{i}	=	The air dose factor due to gamma radionuclide "i"(mrad/year/uCi/m Table 2.2-11.	emissions ³) from AT	from noble gas TACHMENT G
	1.1	==	The ratio of the tissue to air absor energy range of the photons of int	ption coeff terest, (mre	icients over the m/mrad).

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ile:		Unit:	Level Of Use:
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8.1.2.1.4	<u>BV-2 Maximum Acceptable Release R</u>	ate (Individual	<u>Radionuclide)</u>
	The maximum acceptable release rate (up in the gaseous effluent (Q_i) for each noble effluent was determined by:	Ci/sec) of noble le gas radionucli	gas radionuclide "i" ide in the gaseous
	$Q_i = S_i Q_t$		[2.1(2)-4]
	NOTE: Use the lower of the Q _t values of 8.1.2.1.3.	obtained in Sect	ion 8.1.2.1.2 and
8.1.2.1.5	BV-2 Maximum Acceptable Concentra	ations (Individu	<u>al Radionuclide)</u>
	The maximum acceptable radioactivity c radionuclide "i" in the gaseous effluent (radionuclide in the gaseous effluent was	concentration (u Ci) for each indi determined by:	Ci/cc) of noble gas ividual noble gas
	$C_i = \frac{2.12E - 3 Q_i}{F}$		[2.1(2)-5]
	where:		
	F = The maximum acceptable e (cfm) as listed in Section 8.	ffluent flow rate	e at the point of release
	2.12E-3 = Unit conversion factor (60 s)	sec/min x 3.53E	$-5 \text{ ft}^{3}/\text{cc}$).
8.1.2.1.6	BV-2 Monitor Count Rate		
	The calculated monitor count rate (ncpm noble gas radionuclide (CR) was determi) above backgro ned by:	ound attributed to the
	$CR = \sum_{i} C_{i} E_{i}$		[2.1(2)-6)]
	where:		
	Ei = The detection efficiency of the r (cpm/uCi/cc) from ATTACHM	monitor for nob ENT B Table 2.	le gas radionuclide "i" 1-2b.

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8.1.2.1.7	BV-2 Monitor Setpoints		
	The monitor alarm setpoints above backgrou	ind were det	ermined as follows:
	• The monitor HIGH Alarm Setpoint above determined by:	e backgroun	d (uCi/cc) was
	$HSP = \frac{0.60 \times CR}{E_{i \text{ ave}}}$		[2.1(2)-7]
	where;		- <u>-</u>
	$E_{i ave}$ = The CR of equation [2.1(2)-6] of the respective mix.	divided by th	te sum of the C_i for
	• The monitor ALERT Alarm Setpoint abo determined by:	ove backgrou	und (uCi/cc) was
·	$ASP = \frac{0.30 \text{ x CR}}{E_{i \text{ ave}}}$		[2.1(2)-8]
8.1.2.2	BV-2 Setpoint Determination Based On Analysi and CV-2 Ground Releases	<u>s Prior To I</u>	Release for VV-2
	When the setpoints established using "the calculate flexibility for operational needs, the method describ	d mix" do no bed below m	ot provide adequate ay be used in lieu of

flexibility for operational needs, the method described below may be used in lieu of that set forth in Section 8.1.2.1. In this case, the results of sample analysis are used to determine the appropriate nuclide mix. This calculational method applies when determining the setpoint for the maximum acceptable discharge flow rate and the associated HIGH Alarm Setpoint based on respective vent flow rate during the following operational conditions:

• Batch release of Containment Purge via VV-2.

• Batch release of Containment Purge via CV-2.

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	81221	BV-2 N	laxii	num Acceptable Release Rate		25 01 120	
	0.1.2.2.1	The me		um accontable discharge flow rate f	rom VV 2	or CV 2 during	
		purging	is de	etermined as follows:	10m v v-2	or CV-2 during	
		• The CV-calc	max 2 (ci ulate	imum acceptable gaseous discharg fm) during purging based upon the d by:	e flow rate whole body	(f) from VV-2 or y exposure limit is	
	· · ·	f=	1 (X/q	$\frac{06 \text{ S T}}{\sum_{i} K_{i} C_{i}}$		[2.1(2)-17]	
		where:					
		1.06	=	500 mrem/yr x 2.12E-3			
				500 mrem/yr = dose rate limit,	whole bod	y exposure	
				2.12E-3 = unit conversion = $(60 \text{ sec/min x } 3)$	factor .53E-5 ft ³ /	cc)	
		S	=	Percent of site dose rate released we the site dose rate is permissible for alarm setpoint rules of Section 8.1	via this path r one releas .2.	nway. Up to 60% of se point under the	
		Τ	=	Maximum value for T is 16 based ODCM CONTROL 3.11.2.1 when containment purge may be averag exceed 960 minutes. (As contain period is 60 minutes; $T = 960/60 =$	on the lim re the dose ed over a timent air vo = 16). ^(3.1.2.4)	iting restriction in rate for a ime period not to lume change time	
		(X/q) _{vv}	Ξ	The highest calculated short term effluents released via VV-2 for an unrestricted area boundary for all ATTACHMENT M Table 2.3-36.	relative con y area at or sectors (see	ncentration of r beyond the c/m ³) from	
			=	3.32E-4 sec/m^3	•		
		(X/q) _{ev}	=	The highest calculated short term effluents released via CV-2 for any unrestricted area boundary for all ATTACHMENT M Table 2.3-37.	relative con y area at or sectors (see	ncentration of beyond the c/m ³) from	
				3.08E-4 sec/m^3			

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	K _i = The total whole body dos noble gas radionuclide "i' ATTACHMENT G Table	e factor due to gar ' (mrem/year/uCi/n e 2.2-11.	nma emissions from m ³) from	
	C _i = The undiluted radioactivit radionuclide "i" in the gas analysis of the gas to be r	ty concentration of seous source (uCi/ eleased.	f noble gas cc) as determined by	
	• The flow rate (f) is also determined follows:	based upon the sk	in exposure limit as	
	$f = \frac{6.36 \text{ S T}}{(X/q) \sum_{i} (L_{i} + 1.1 M_{i}) C_{i}}$		[2.1(2)-18]	
	where:			
	6.36 = 3000 mrem/yr x 2.12E-3			
	3000 mrem/yr = dose rate li	imit, skin exposure	2	
	2.12E-3 = unit conver= (60 sec/min	rsion factor n x 3.53E-5 ft ³ /cc)	,	
	L _i = The skin dose factor due to be radionuclide "i" (mrem/year/u 2.2-11.	eta emissions from aCi/m ³) from ATT	noble gas ACHMENT G Table	
	M _i = The air dose factor due to gan radionuclide "i" (mrad/year/ut 2.2-11.	nma emissions fro Ci/m ³) from ATTA	m noble gas ACHMENT G Table	
	(X/q) = Same as above.			
	• The flow rate (f) is determined by seven values based on the whole body exp shown above. The actual purge flow below this calculated (f) value or the	electing the smalle oosure limit, or the v rate (cfm) must l e discharge cannot	r of the calculated (f skin exposure limit be maintained at or be made from the	

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8.1.2.2.2	BV-2 Monite	or Setpoints		
	The monitor :	alarm setpoints above back	ground are deter	mined as follows:
	• The calcu uCi/cc) at	lated monitor HIGH Alarm tributed to the noble gas ra	1 Setpoint above dionuclides is de	background (net termined by:
	$HSP = \frac{f \sum_{i} C}{F' E}$	i ave		[2.1(2)-19]
	where:			
	f	 The maximum accept (cfm) determined in S 	table containmen Section 8.1.2.2.1.	t purge flow rate
	F'	 The maximum actual the point of release. 	or design effluer	nt flow rate (cfm) at
		= 53,700 cfm for VV-2	,	
		= 59,000 cfm for CV-2		
	Ci	 The undiluted radioad radionuclide "i" in the determined by analys 	ctivity concentrat e gaseous source is of the gas to b	tion of noble gas (uCi/cc) as e released.
	E _i	 The detection efficient radionuclide "i" (cpm Table 2.1-2b. 	ncy of the monito n/uCi/cc) from A	or for noble gas ITACHMENT B
	$E_{i ave}$	= The CR of equation [2 for the respective mix	2.1(2)-6] divided	by the sum of the Ci
	NOTE: To e uCi/ "cal- _{ave} a mor indi	enable maintaining a consta (cc in the Digital Radiation culated mix" is used rather bove. This does not cause nitor setpoint to properly co cated uCi/cc value may dif	Int conversion fac Monitoring Syst than the analysis any change in the ontrol dose rate. I fer from the actu	ctor from cpm to em software, the mix to calculate E _i e function of the However, the monitor al value.
	• When a H section, th uCi/cc) is	IGH Alarm Setpoint has be the monitor ALERT Alarm S determined as follows:	een calculated acc Setpoint above ba	cording to this ackground (net
	ASP = HS	SP x 0.5		[2.1(2)-20]

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8.1.3 <u>BV</u> -	-1/2 Monitor Alarm Setpoin	nt Determination				
See	Section 8.1.1 for a description	on of Monitor Alarm Set	point Dete	ermination.		
8.1.3.1	BV-1/2 Setpoint Determi Elevated Releases	nation Based On A Ca	lculated M	lix For PV-1/	2	
	The calculated monitor con HIGH-HIGH alarm setpoin alarm setpoint above backy the following Table:	unt rate above backgrou nt above background (H ground (HSP) for each c	nd (CR), in HSP), and operational	ncpm, the monitor H condition are	onitor IIGH shown ir	
	BV-1/2 ALAR	M SETPOINTS FOR E	LEVATEI cpm A	D RELEASES	KGROU	
		(P)PRIMARY* <u>MONITOR</u> (A)ALTERNATE <u>MONITOR</u>	CR	60% SITE LIMIT UPPER <u>ALARM</u>	30% SITI LIMI LOWE <u>ALARI</u>	
	Continuous Release	(P)RM-1GW-108B (A)RM-1GW-109(5)	3.49E7 2.61E7	≤ 3.60E5 ≤ 3.60E5	≤ 1.20I ≤ 1.20I	
	Batch Release Of BV-1 Decay Tanks or BV-2 Storage Tanks	(P)RM-1GW-108B (A)RM-1GW-109(5)	3.93E5 7.87E6	≤ 2.36E5 ≤ 3.60E5	≤ 1.181 ≤ 1.201	
	*IF the primary monitor is for the respective alternat	out of service, <u>THEN</u> C te monitor. The alternat	DCM COI e setpoints	NTROL 3.3.3 shall be utiliz	10 is me ed:	
	The setpoints were determine flow rate of 1450 cfm for H The calculational method b following operational cond	ined using a calculated n PV-1/2. below was used to derive litions:	nix from th the monit	e FSAR and o	lischarge or the	
	Continuous release via	PV-1/2.	• .			
	• Batch release of BV-1	or BV-2 Waste Gas Dec	ay Tank vi	a PV-1/2.		
	• Batch release of BV-1 of the above table. Howe Containment Purge via accordance with Sectio	or BV-2 Containment Pover, if it is necessary to p this release point, the al n 8.1.3.2.	urge via PV perform a E arm setpoi	V-1/2 is not sh 3V-1 or BV-2 nt shall be cal	own in culated i	
8.1.3.1.	1 <u>BV-1/2 Mix Radion</u>	uclides				
	The "mix" (noble gas was determined as fo	s radionuclides and comp llows:	position) of	f the gaseous of	effluent	

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- The gaseous source terms that are representative of the "mix" of the gaseous effluent were evaluated. Gaseous source terms are the radioactivity of the noble gas radionuclides in the effluent. The gaseous source terms can be obtained from ATTACHMENT A Tables 2.1-1a. and 2.1-1b.
- The fraction of the total radioactivity in the gaseous effluent comprised by noble gas radionuclide "i" (Si) for each individual noble gas radionuclide in the gaseous effluent was calculated by:

$$S_{i} = \frac{A_{i}}{\sum_{i} A_{i}}$$
[2.1-9]

where:

A_i = The total radioactivity or radioactivity concentration of noble gas radionuclide "i" in the gaseous effluent from ATTACHMENT A Table 2.1-1a and 2.1.1b.

8.1.3.1.2 BV-1/2 Maximum Acceptable Release Rate (Whole Body Exposure)

The maximum acceptable total release rate (uCi/sec) of all noble gas radionuclides in the gaseous effluent (Q_t) based upon the whole body exposure limit was determined by:

$$Q_{t} = \frac{500}{\sum_{i} V_{i} S_{i}}$$
[2.1.10]

where:

- V_i = The constant for noble gas radionuclide "i" accounting for the gamma radiation from the elevated finite plume (mrem/year/uCi/sec) from ATTACHMENT G Table 2.2-12.
- S_i = From equation [2.1-9]

8.1.3.1.3 BV-1/2 Maximum Acceptable Release Rate (Skin Exposure)

Qt was also determined based upon the skin exposure limit as follows:

$$Q_{t} = \frac{3000}{\sum_{i} [L_{i}(X/Q)_{pv} + 1.1B_{i}]S_{i}}$$
[2.1-11]

where:

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		Li	=	The skin dose factor due to beta e radionuclide "i"(mrem/year/uCi/n Table 2.2-11.	emissions f n ³) from A	from noble gas ATTACHMENT G
		(X/Q) _{pv}	=	The highest calculated annual ave effluents releases via PV-1/2 for a unrestricted area boundary for all ATTACHMENT F Table 2.2-6.	erage relat any area at sectors (s	ive concentration of t or beyond the ec/m^3) from
			=	$2.31\text{E-6 sec/m}^3 (0.5 - 1.0 \text{ miles})$		
		(X/q) _{pv}	=	The highest calculated short term effluents released via PV-1/2 for unrestricted area boundary for all ATTACHMENT N Table 2.3-38.	relative co any area a sectors (so	oncentration of t or beyond the ec/m ³) from
			=	$1.07\text{E-5 sec/m}^3 (0.5 - 1.0 \text{ miles})$		
		Bi		The constant for long term release noble gas radionuclide "i" accoun dose from the elevated finite plum ATTACHMENT G Table 2.2-12.	es (greater ting for th ne (mrad/y	than 500 hrs/year) for e gamma radiation year/uCi/sec) from
	8.1.3.1.4	<u>BV-1/2</u>	Maz	<u> kimum Acceptable Release Rate (</u>	<u>Individua</u>	al Radionuclide)
		The max the gased gaseous	imu ous efflu	am acceptable release rate (uCi/sec) effluent (Q _i) for each individual no uent was determined by:) of noble ; ble gas rad	gas radionuclide "i" i dionuclide in the
		$Q_i = S_i Q_i$)t			[2.1-12]
		NOTE:	Us 8.1	the the lower of the Q_t values obtained $.3.1.3$.	ed in Secti	on 8.1.3.1.2 and
	8.1.3.1.5	<u>BV-1/2</u>	Max	timum Acceptable Concentration	ıs (Individ	lual Radionuclide)
		The max radionuc radionuc	imu lide lide	m acceptable radioactivity concent "i" in the gaseous effluent (C _i) for in the gaseous effluent was determ	ration (uC each indiv iined by:	i/cc) of noble gas vidual noble gas
		$C_i = \frac{2.12}{2}$	2E - F	-3 Q _i		[2.1-13]
		where:				
		2.12E-3	=	Unit conversion factor (60 sec/min	1 x 3.53E-	5 ft ³ /cc).

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	F = The maximum acceptable efflu (cfm) as listed in Section 8.1.3	ient flow rate	e at the point of release
8.1.3.1.6	BV-1/2 Monitor Count Rate		
	The calculated monitor count rate (ncpm) at noble gas radionuclide. (CR) was determined	oove backgro ed by:	und attributed to the
	$CR = \sum_{i} C_{i} E_{i}$		[2.1-14]
	where:		
	E _i = The detection efficiency of the mo (cpm/uCi/cc) from ATTACHMEN	nitor for nob IT B Table 2.	le gas radionuclide "i" 1-2a and 2.1-2b.
8.1.3.1.7	BV-1/2 Monitor Setpoints		
	The monitor alarm setpoints above backgrou	und were dete	ermined as follows:
	• The monitor HIGH-HIGH Alarm Setpoi determined by:	nt above bacl	kground (ncpm) was
	HHSP = 0.60 x CR		[2.1-15]
	• The monitor HIGH Alarm Setpoint above determined by:	e background	d (ncpm) was
	HSP = 0.30 x CR		[2.1-16]
8.1.3.2 <u>BV</u> <u>1/2</u>	7-1/2 Setpoint Determination Based On Analy Elevated Releases	<u>ysis Prior To</u>	Release For PV-
The Gas ope ma: Set GW con	e following calculation method applies to gased seous Waste/Process Vent when the "calculated erational flexibility. This method is used to deter ximum acceptable discharge flow rate and the a point based on this flow rate for the BV-1/2 Ga V-108B) or alternate (RM-1GW-109 CH 5) duri- nditions:	bus releases vi l mix" does n ermine the se associated HI seous Waste ing the follow	ia the PV-1/2 ot provide adequate tpoint for the GH-HIGH Alarm Gas Monitor (RM- ving operational
•	Continuous release via PV-1/2.		
•	Batch release of BV-1 or BV-2 Waste Gas Dec	ay Tank via	PV-1/2.

- Batch release of BV-1 or BV-2 Containment Purge via PV-1/2.
- 8.1.3.2.1 BV-1/2 Maximum Acceptable Release Rate

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Determine the maximum acceptable discharge the Process Vent for the analyzed mix.	flow rate f	or the release from
 The maximum acceptable gaseous discharg Vent (cfm) based upon the whole body exp 	ge flow rate	e (f) from the Process is determined by:
$f = \frac{1.06 \text{ S}}{\sum_{i} V_{i} C_{i}}$		[2.1-21]
where:		
1.06 = 500 mrem/yr x 2.12E-3		
500 mrem/yr = dose rate limit, y	whole body	exposure
2.12E-3 = unit conversion = $(60 \text{ sec/min x } 3)$	factor 53E-5 ft ³ /co	c)
S = Percent of site dose rate released the site dose rate is permissible for alarm setpoint rules of Section 8.	via this pat or one relea 1.3.	hway. Up to 60% of se point under the
V _i = The constant for noble gas radion gamma radiation from the elevate from ATTACHMENT G Table 2	uclide "i" a ed plume (n .2-12.	accounting for the nrem/year/uCi/sec)
C _i = The undiluted radioactivity concernation radionuclide "i" in the gaseous so analysis of the gas to be released.	entration of ource (uCi/c	noble gas c) as determined by
• Based upon the skin exposure limit, (f) is calcu	ilated by:	
$f = \frac{6.36 \text{ S}}{\sum_{i} [L_{i} (X/Q)_{pv} + 1.1B_{i}] C_{i}}$		[2.1-22]
where:		
6.36 = 3000 mrem/yr x 2.12E-3		
3000 mrem/yr = dose rate limit, s	kin exposu	re
2.12E-3 = unit conversion f = $(60 \text{ sec/min x } 3.5)$	factor 53E-5 ft ³ /cc	:)
L _i = The skin dose factor due to beta em radionuclide "i" (mrem/year/uCi/m ² Table 2.2-11.	issions fror) from AT	n noble gas FACHMENT G

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(X/Q) _{pv} = The highest calculated annual aver effluents released via PV-1/2 for a unrestricted area boundary for all ATTACHMENT F Table 2.2-6.	rage relative any area at c sectors (sec	e concentration of or beyond the :/m ³) from
$= 2.31E-6 \text{ sec/m}^3$		
$(X/q)_{pv}$ = The highest calculated short term released via PV-1/2 for any area at boundary for all sectors (sec/m ³) for 2.3-38.	relative con t or beyond rom ATTA	, the unrestricted area CHMENT N Table
$= 1.07 \text{E-5 sec/m}^3$		
B _i = The constant for long-term release noble gas radionuclide "i" account the elevated finite plume (mrad/ye ATTACHMENT G Table 2.2-12.	s (greater thing for the ar/uCi/sec)	han 500 hrs/year) for gamma radiation from from
 Select the smaller of the calculated f values based of and based on the skin exposure limit shown above. (cfm) must be maintained at or below this (f) value. 8 1 3 2 2 BV-1/2 Monitor Setpoints 	on the whole The actual	e body exposure limit discharge flow rate
	1 1 /	
The monitor alarm setpoints above backgroun	d are deterr	nined as follows:
• The calculated monitor HIGH-HIGH Alar (ncpm) attributed to the noble gas radionud	m Setpoint clides is det	above background termined by:
$HHSP = \frac{f \sum_{i} C_{i} E_{i}}{F'}$		[2.1-23]
where:		
f = The maximum acceptable gaseous di determined in Section 8.1.3.2.1.	ischarge flo	w rate (cfm)
F' = The maximum actual or design efflue of release.	ent flow rat	e (cfm) at the point
= 1450 cfm for PV-1/2		
C _i = The undiluted radioactivity of noble gaseous source (uCi/cc) as determine released.	gas radionu ed by analys	aclide "i" in the sis of the gas to be

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 E_i = The detection efficiency of the respective monitor (RM-1GW-108B) or (RM-1GW-109 CH 5) for noble gas radionuclide "i" (cpm/uCi/cc) from ATTACHMENT B Table 2.1-2a and 2.1-2b.

When a HIGH-HIGH Alarm Setpoint has been calculated according to this section the monitor HIGH Alarm setpoint above background (ncpm) is determined by:

 $HSP = HHSP \ge 0.5$

[2.1-24]

8.2 Compliance With 10 CFR 20 Dose Rate Limits (ODCM CONTROL 3.11.2.1)

8.2.1 Dose Rate Due To Noble Gases

The dose rate in unrestricted areas resulting from noble gas effluents from the site is limited to 500 mrem/yr to the total body and 3,000 mrem/yr to the skin. Site gaseous effluents are the total of BV-1 and BV-2 specific ground releases and a shared elevated release, the PV-1/2 Gaseous Waste/Process Vent. Based upon NUREG-0133 ^(3.1.3.1) the following equations are used to show compliance with ODCM CONTROL 3.11.2.1.a.

$$\sum_{i} \left[V_{i} Q_{is} + K_{i} (\overline{X/Q})_{v} Q_{iv} \right] < 500 \text{ mrem/yr}$$
[2.2-1]

$$\sum_{i} \left[\left[L_{i}(\overline{X/Q})_{s} + 1.1B_{i} \right] Q_{is} + \left[L_{i} + 1.1M_{i} \right] (\overline{X/Q})_{v} Q_{iv} \right] \le 3000 \text{ mrem/yr}$$
 [2.2-2]

where:

- K_i = The total body dose factor due to gamma emissions for each identified noble gas radionuclide "i", mrem/year/uCi/m³.
- L_i = The skin dose factor due to beta emissions for each identified noble gas radionuclide "i", mrem/year/uCi/m³.
- M_i = The air dose factor due to gamma emissions for each identified noble gas radionuclide "i", mrad/year/uCi/m³.
- V_i = The constant for each identified noble gas radionuclide "i" accounting for the gamma radiation from the elevated finite plume, mrem/year/uCi/sec.
- B_i = The constant for long-term releases (greater than 500 hrs/year) for each identified noble gas radionuclide "i" accounting for the gamma radiation from the elevated finite plume, mrad/year/uCi/sec.
- 1.1 = The ratio of the tissue to air absorption coefficients over the energy range of the photon of interest, mrem/mrad.
- Q_{is} = The release rate of noble gas radionuclide "i" in gaseous effluents from freestanding stack, uCi/sec.

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Q _{iv} = The release rate of noble gas radionuclide 'vent releases, uCi/sec.	'i" in gaseous	effluents from all
$(\overline{X/Q})_s$ = The highest calculated annual average relatively beyond the unrestricted area boundary for d	tive concentra elevated releas	tion for any area at or ses (sec/m ³).
$(\overline{X/Q})_v$ = The highest calculated annual average relative beyond the unrestricted area boundary for e	tive concentra	tion for any area at or ses (sec/m ³).
At the Beaver Valley site gaseous releases may occur fro (RP's) as shown in ATTACHMENT P Figure 2.4.2:	m the followi	ng Release Points
RP 1 & 4. The BV-1 Auxiliary Building Vent and the B atop the Auxiliary Buildings (VV-1 and VV-	V-2 SLCRS U 2)	Infiltered Pathway
RP 2 & 5. The BV-1 Rx Containment/SLCRS Vent and atop the Containment Domes (CV-1 and CV-	the BV-2 SL -2)	CRS Filtered Pathway
RP 3. The BV-1/2 Gaseous Waste/Process Vent ato	op the BV-1 C	cooling Tower (PV-1/2)
RP 6. The BV-2 Condensate Polishing Building Ve	ent (CB-2)	
RP 7. The BV-2 Waste Gas Storage Vault Vent (W	'V-2)	
RP 8. The BV-2 Decontamination Building Vent (I	OV-2)	
RP 9. The BV-2 Turbine Building Vent (TV-2)		
• The effluents from Release Point 1 & 4 are ground le of these releases are Containment Purges and normal BV-2 the sources of these releases are Containment P ventilation.	vel in nature. Auxiliary Bui Purges and Cor	At BV-1 the sources ilding Ventilation. At ntiguous Area
 Effluent from the Release Point 2 & 5 are assumed gr source of these releases is the Supplementary Leak C (SLCRS). At BV-2 the source of these releases is not Ventilation. It is also possible to release Containment 	round level in ollection and I rmal Auxiliary t Purges from	nature. At BV-1 the Release System y Building these vents.
• Release Points 6, 7, 8 and 9 are not normally radioact	ive release po	ints.
 The effluent from Release Point 3 are elevated, and the Main Condenser Air Ejectors, the Waste Gas Decay 7 Vacuum Pumps. 	ne sources of t Fanks and the	hese releases are the Containment
Noble gas releases may normally occur from Release Poi	nts 1 through	5 above. To show

compliance with the site limits of ODCM CONTROL 3.11.2.1.a, Equations [2.2-1] and [2.2-2] are expressed in terms of the actual release points for the site. Note that the expressions

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for release points 6, 7, 8 and 9 are included for use if radioac points are identified in the future.	tive releas	ses via these release	
8.2.1.1 <u>Total Body Dose Rate (All Release Points)</u>			
$\sum_{i} V_{i} Q_{i}_{pv} + \sum_{i} K_{i} \left[(\overline{X/Q})_{cv} Q_{i}_{cv1} + (\overline{X/Q})_{vv} Q_{i}_{vv1} + (\overline{X}/\overline{Q})_{vv1} \right]$	$\overline{(Q)}_{cv} Q_{i}$	$+(\overline{X/Q})_{VV}$	
$Q_{i_{vv2}} + (\overline{X/Q})_{tv} Q_{i_{tv2}} + (\overline{X/Q})_{cb} Q_{i_{cb2}} + (\overline{X/Q})_{dv} Q_{i_{dv}}$	$+(\overline{X/Q})$	$Q_{WV} Q_{i_{WV2}}$]	
≤ 500 mrem/yr		[2.2-3]	
8.2.1.2 Skin Dose Rate (All Release Points)			
$\sum_{i} \left[L_{i} (\overline{X/Q})_{pv} + 1.1B_{i} \right] Q_{i} + \sum_{i} \left[L_{i} + 1.1M_{i} \right] [(\overline{X/Q})_{pv} + \sum_{i} \left[L_{i} + 1.1M_{i} \right] [(\overline{X/Q})_{pv} + 1.1B_{i}] $	cv Q _i	$+ (\overline{X/Q})_{VV} Q_{i_{VVI}} +$	
$(\overline{X/Q})_{cv} Q_{i_{cv2}} + (X/Q)_{vv} Q_{i_{vv2}} + (\overline{X/Q})_{tv} Q_{i_{tv2}} +$	$+ (\overline{X/Q})_{cb}$	$Q_{i_{cb2}} + (\overline{X/Q})_{dv}$	
$Q_{i_{dv2}} + (\overline{X/Q})_{WV} Q_{i_{Wv2}}] \le 3000 \text{ mrem/yr}$		[2.2-4]	
where:			
$Q_{i_{pv}}$ = Release rate of radionuclide "i" from the PV	-1/2, uCi/s	Sec.	
$Q_{i_{CV1}}$ = Release rate of radionuclide "i" from CV-1,	uCi/sec.		
$Q_{i_{cv2}}$ = Release rate of radionuclide "i" from CV-2,	uCi/sec.		
$Q_{i_{vv1}}$ = Release rate of radionuclide "i" from VV-1 A	Auxiliary I	Building, uCi/sec.	
$Q_{i_{VV2}}$ = Release rate of radionuclide "i" from VV-2, where $VV_{i_{VV2}}$	uCi/sec.		
$Q_{i_{tv2}}$ = Release rate of radionuclide "i" from TV-2, u	uCi/sec.		
$Q_{i_{cb}}$ = Release rate of radionuclide "i" from CB-2, u	uCi/sec.		

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	Q _{i dv2}	-	Release rate of radionuclide "i" from DV-2	2, uCi/sec.	
	Q _i wv2	=	Release rate of radionuclide "i" from WV-2	2, uCi/sec.	
	$(\overline{X/Q})_{pv}$	Ш	Highest calculated annual average relative the PV- $1/2$, sec/m ³ .	concentrati	on for releases from
	$(\overline{X/Q})_{cv}$	Ξ	Highest calculated annual average relative CV-1 and CV-2, sec/m^3 .	concentrati	on for releases from
	$(\overline{X/Q})_{vv}$	=	Highest calculated annual average relative VV-1 and VV-2, sec/m ³ .	concentrati	on for releases from
	$(\overline{X/Q})_{tv}$	=	Highest calculated annual average relative TV-2, sec/m^3 .	concentrati	on for releases for
	$(\overline{X/Q})_{cb}$	=	Highest calculated annual average relative CB-2, sec/m^3 .	concentrati	on for releases for
	$(\overline{X/Q})_{dv}$	Н	Highest calculated annual average relative DV-2, sec/m^3 .	concentrati	on for releases for
	$(\overline{X/Q})_{wv}$	П	Highest calculated annual average relative WV-2, sec/m ³ .	concentrati	on for releases for
	The releas the entire	se ra purg	te for a containment purge is based on an av ge (not to exceed 960 min in accordance with	eraged relean ODCM C	ase rate in uCi/sec for ONTROL 3.11.2.1).
	All other t	erm	s remain the same as those defined previous	ly.	
	For the sit various co determine For Relea	e, 4 ombi the se M	potential modes of release are possible. The nations of sources of radioactivity and their controlling locations. They are presented in fodes 1, 2, and 3, the controlling location for 11, 2, 1, a is 0, 35 miles NW. Inserting the an	e release mo release poi ATTACH implement propriate X	odes identify the nts which are used to MENT C Table 2.2-1. tation of ODCM

CONTROL 3.11.2.1.a is 0.35 miles NW. Inserting the appropriate X/Q's from ATTACHMENT F Tables 2.2-4 through 2.2-10 for this location, Equations [2.2-3] and [2.2-4] become:



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8.2.1.7 Determination of Controlling Location

The determination of controlling location for implementation of ODCM CONTROL 3.11.2.1.a for noble gases is a function of the following parameters:

- Radionuclide mix and their isotopic release rate
- Release Mode
- Meteorology

The incorporation of these 3 parameters into Equations [2.2-3] and [2.2-4] resulted in the equations for the controlling locations as presented in Equations [2.2-5 through 2.2-8].

The radionuclide mix used to determine controlling locations was based on source terms calculated with the Stone and Webster Engineering Corporation computer code GAS1BB (similar to NUREG-0017.^(3.1.3.4) Inputs were based on operating modes of the respective plants. The code inputs utilized are presented in 1/2-ODC-3.01. The source term is presented in ATTACHMENT D Tables 2.2-2a and 2.2-2b as a function of release type and Release Point.

The X/Q values utilized in the equations for implementation of ODCM CONTROL 3.11.2.1.a are based upon the maximum long-term annual average X/Q in the unrestricted area. ATTACHMENT E Table 2.2-3 presents the distances from the Release Points to the nearest unrestricted area for each of the 16 sectors as well as to the nearest vegetable garden, cow, goat, and beef animal. ATTACHMENT F Tables 2.2-4 through 2.2-10 present the long-term annual average (X/Q) values for all Release Points to the special locations presented in ATTACHMENT E Table 2.2-3. A description of their derivation is provided in 1/2-ODC-3.01.

For Release Modes 1, 2, and 3, dose calculations were performed using the highest calculated site boundary X/Q values applicable to the release points involved and the projected radionuclide mix applicable to the release source. In that a simultaneous, continuous elevated release could contribute to the dose at a given location, the selection of the two highest sector X/Q values at the site boundary considered this contribution. From these results, the distance and sector associated with the highest calculated site boundary dose were selected as the controlling location.

For Release Modes 1, 2, and 3 the controlling location is 0.35 miles NW. In Release Mode 1, the dominant release is via VV-1 and CV-2. In Release Modes 2 and 3, the dominant release is a Containment Purge from the VV-1 or VV-2.

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For Release Mode 4, a similar evaluation was performed. Long-term annual average X/Q values were calculated at the mid-point of the 10 standard distances listed in ATTACHMENT F Table 2.2-4 through 2.2-10. In that a simultaneous, ground level release could contribute to the dose at a given location, the selection of the two highest X/Q values at the controlling distance considered this contribution. Since the two maximum X/Q values occurred in the 0.5 - 1.0 mile radial band, the controlling distance was selected at 0.75 miles. From the calculated dose results, the controlling sector was shown to be North. In this Release Mode, the dominant release is a Containment Purge via the PV-1/2 Gaseous Waste/Process Vent. Neither of the controlling receptor locations are presently inhabited.

Values for K_i, L_i, and M_i, which were used in the determination of the controlling receptor location and which are to be used in Equations [2.2-5] through [2.2-8] to show compliance with ODCM CONTROL 3.11.2.1.2, are presented in Table 2.2-11. Values taken from Table B-1 of NRC Regulatory Guide 1.109, Revision 1,^(3.1.3.5) were multiplied by 1E6 to convert picocuries to microcuries for use in ATTACHMENT G Table 2.2-11.

Values for V_i and B_i for the finite plume model can be expressed as shown in Equation [2.2-9] and [2.2-10]. Values were calculated using the NRC code RABFIN at the site boundary location which would receive the highest total dose from all Release Points. These values are presented in ATTACHMENT G Table 2.2-12 and calculated from the following equation:

$$B_{i} = \frac{K}{r_{d}} \sum_{j} \sum_{k} \sum_{l} \frac{f_{jk} A_{li} u_{a} E_{l} I}{u_{j}}$$
[2.2-9]

where:

=

- I = The results of numerical integration over the plume spatial distribution of the airborne activity as defined by the meteorological condition of wind speed (u_i) and atmospheric stability class "k" for a particular wind direction.
- K = A numerical constant representing unit conversions.

$$\frac{(260 \text{ mrad})(\text{radians}) \text{ (m}^3) \text{ (transformation)}}{(\text{sec})(\text{Mev})(\text{Ci})} \left[\frac{16 \text{ sectors}}{2\pi \text{ radians}} \right]$$

$$\left[1E - 6 \frac{Ci}{uCi}\right] \left[3.15E7 \frac{sec}{yr}\right]$$

= $2.1E4 \text{ mrad } (\text{m}^3) (\text{transformation})/\text{yr}(\text{Mev})(\text{uCi}).$

- r_d = The distance from the release point to the receptor location, meters.
- u_i = The mean wind speed assigned to the "j" th wind speed class, meters/sec.

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	f _{jk} =	The joint frequency of occurrence of the "j" stability class (dimensionless).	th wind sp	eed class and kth
	A _{li} =	The number of photons of energy correspond emitted per transformation of the "i" th radio	ling to the nuclide, m	"l" th energy group umber/transformation.
·	E _l =	The energy assigned to the "l" th energy grou	up, Mev.	
	u _a =	The energy absorption coefficient in air for p	hoton ener	rgy H ₁ , meters $^{-1}$.
	The V _i factor i	s computed with conversion from air dose to	tissue dep	th dose, thus:
	$V_i = 1.1 \frac{K}{r_d} \sum_{j}$	$\sum_{k=1}^{j} \frac{f_{jk} A_{li} u_{a} E_{1} I_{e} - u_{T} T_{d}}{u_{j}}$		[2.2-10]
	where:			
	u _T =	The tissue energy absorption coefficient for	photons of	energy E ₁ , cm ² /gm.
	T _d =	The tissue density thickness taken to represent (5gm/cm ²).	nt the total	body dose
	1.1 =	The ratio of the tissue to air absorption coeffi photons of interest, mrem/mrad.	icients ove	r the energy range of
8.2.2	<u>Dose Rate Du</u>	e To Radioiodines And Particulates		
	The dose rate radionuclides released in gas Based upon N with ODCM C	in unrestricted areas resulting from the of inh in particulate form (excluding C-14) with hal seous effluents from the site shall be limited t UREG-0133, ^(3.1.3.1) the following basic equation CONTROL 3.11.2.1.b:	alation of f f lives grea to 1,500 m tion is used	I-131, tritium, and all ater than 8 days rem/yr to any organ. to show compliance
	$\sum_{i} P_{i\tau} \left (\overline{X/Q})_{s} \right $	$Q_{is} + (\overline{X/Q})_v Q_{iv} \le 1,500 \text{ mrem/yr}$		[2.2-11]
	where:			
	$P_{i\tau}$	 Dose parameter for any organ τ for each i mrem/yr per uCi/m3. 	identified r	adionuclide "i",
	Q _{is}	= The release rate of radionuclide "i", in ga releases, uCi/sec.	seous efflu	ents from elevated
	Q_{iv}	 The release rate of radionuclide "i", in gas level releases, uCi/sec. 	seous efflu	ents from ground

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$(\overline{X/Q})_s$ = The highest calculated annual av unrestricted area boundary for el	verage relative concentration at the levated releases, sec/m ³ .
$(\overline{X/Q})_v$ = The highest calculated annual av unrestricted area boundary for gr	verage relative concentration at the round level releases, sec/m ³ .
NOTE: The dispersion parameters specif site boundary as defined above.	fied in Section 8.2.2 are limited to the
Releases may occur from any Release Point in the ATTACHMENT C Table 2.2-1. To show complia Equation [2.2-11] is now expressed in terms of the	Release Modes listed in ance with ODCM CONTROL 3.11.2.1.b, actual Release Points for the site.
$\sum_{i} P_{i\tau} \left[(\overline{X/Q})_{pv} Q_{i}_{pv} + (\overline{X/Q})_{cv} Q_{i}_{cv'} + (\overline{X/Q}) \right]$	$Q_{vv} Q_{i_{vv}}^{1} + (\overline{X/Q})_{cv} Q_{i_{vv}}^{2} + (\overline{X/Q})_{vv}$
$(\overline{X/Q})_{tv} Q_{i}_{tv^2} + (\overline{X/Q})_{cb} Q_{i}_{cb^2} + (\overline{X/Q})_{dv} Q_{i}$	$(\overline{X/Q})_{WV} Q_{i_{WV^2}}] \le 1500 \text{ mrem/y}$ dv^2
	[2.2-12]
where:	[]
$(\overline{X/Q})_{pv}$ = Highest calculated annual average from PV-1/2, sec/m ³ .	ge relative concentration for releases
$(\overline{X/Q})_{cv}$ = Highest calculated annual averag from CV-1 and CV-2, sec/m ³ .	ge relative concentration for releases
$(\overline{X/Q})_{vv}$ = Highest calculated annual average from VV-1 and VV-2, sec/m ³ .	ge relative concentration for releases
$(\overline{X/Q})_{tv}$ = Highest calculated annual averag from TV-2, sec/m ³ .	e relative concentration for releases
$(\overline{X/Q})_{cb}$ = Highest calculated annual averag from CB-2, sec/m ³ .	e relative concentration for releases

 $(\overline{X/Q})_{dv}$ = Highest calculated annual average relative concentration for releases from DV-2, sec/m³.

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$(\overline{X/Q})_{wv}$ = Highest calculated annual average relative WV-2, sec/m ³ .	e concentra	tion for release from
Q _i = Long-term release rate of radionuclide "i"	from PV-	1/2, uCi/sec.
Q _i = Long-term release rate of radionuclide "i" cv1	from CV-	1, uCi/sec.
Q _i = Long-term release rate of radionuclide "i" cv2	from CV-	2, uCi/sec.
Q _i = Long-term release rate of radionuclide "i" vv1	from VV-	1, uCi/sec.
Q _i = Long-term release rate of radionuclide "i" vv2	from VV-	2, uCi/sec.
$Q_{i_{tv2}}$ = Long-term release rate of radionuclide "i"	from TV-2	2, uCi/sec.
Q _i = Long-term release rate of radionuclide "i"	from CB-2	2, uCi/sec.
Q_{i} = Long-term release rate of radionuclide "i" dv2	from DV-2	2, uCi/sec.
Q_{i} = Long-term release rate of radionuclide "i" wv2	from WV-	-2, uCi/sec.
All other terms are the same as those defined previously.		

TV-2, CB-2, DV-2 and WV-2 are not normal radioactive Release Points. These Release Points are included only for use if radioactive releases via these vents are identified in the future. In the calculation to show compliance with ODCM CONTROL 3.11.2.1.b only the inhalation pathway is considered.

Values of the organ dose parameters, $P_{i\tau}$, were calculated using methodology given in NUREG-0133.^(3.1.3.1) For the child age group, the following equation was used for all nuclides. The $P_{i\tau}$, values are presented in ATTACHMENT H Table 2.2-13.

 $P_{ir} = 3.79E9 DFA_{ir}$

[2.2-13]

where:

3.7E9 = Breathing rate of child (3,700 m³/yr) x unit conversion factor (1E6 pCi/uCi).

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DFA_i τ = The organ inhalation dose factor for a child from Table 6 of NUREG-0172,^(3.1.3.6) for organ τ , nuclide "i", in units of mrem/pCi.

For Release Modes 1 through 4, the controlling location is the site boundary, 0.35 miles NW.

Equation [2.2-12] becomes:

 $\sum_{i} P_{i\tau} [7.00E - 10Q_{i} + 9.24E - 5Q_{i} + 1.03E - 4Q_{i} + 7.35E - 5Q_{i} + 1.03E - 4Q_{i} + 7.35E - 5Q_{i} + 1.03E - 4Q_{i} + 7.35E - 5Q_{i} + 7.35E - 5Q_{i} + 9.24E - 5Q_{i} + 9.24E$

8.2.2.1 Determination of Controlling Location

The determination of the controlling location for implementation of ODCM CONTROL 3.11.2.1.b for radioiodines and particulates is a function of the same 3 parameters as for noble gases plus a fourth, the actual receptor pathways. The incorporation of these parameters into Equation [2.2-12] results in the respective equations for each Release Mode at the site boundary controlling locations. The radionuclide mix was again based upon the source terms presented in ATTACHMENT D Tables 2.2-2a and 2.2-2b as a function of release type and Release Point.

In the determination of the controlling site boundary for each Release Mode, the highest 2 site boundary X/Q values for each Release Point were utilized in conjunction with the radionuclide mix and the release rate for each Release Point to determine the controlling location.

The Pit values are presented in ATTACHMENT H Table 2.2-13.

The X/Q values in Equation [2.2-14] were obtained from ATTACHMENT F Tables 2.2-4 through 2.2-10.

A description of the derivation of the X/Q values is provided in 1/2-ODC-3.01.

8.3 <u>Compliance With 10 CFR 50 Dose Limits (ODCM CONTROLS 3.11.2.2 And 3.11.2.3)</u> (Gaseous)

At the Beaver Valley site all elevated gaseous releases are considered to originate from a shared radwaste system. The effluent from both units are mixed and discharged from a common Release Point, the PV-1/2 Gaseous Waste/Process Vent, at the top of the Unit 1 Cooling Tower. The resulting dose for the purpose of implementing 10 CFR 50 is normally apportioned equally to each unit. The only exception would be a Containment Purge via the

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Process Vent. The resulting dose shall be attributed to the operation is expected to be rare, equations are shown thr apportionment set at 0.5.	he contributing re oughout this sect	actor unit. Since this ion with the
8.3.1 Dose Due To Noble Gases		
8.3.1.1 <u>Cumulation Of Doses</u>	· .	
Section II.B.1 of Appendix I of 10 CFR 50 (O releases of gaseous effluents from each reacto gamma air dose is limited to 10 millirad and th millirad. In addition, ODCM CONTROL 3.1 air doses when averaged over 31 days exceed beta. Based upon NUREG-0133, ^(3.1.3.1) the air to noble gases released in gaseous effluents ar	DCM CONTROL or such that the est he beta air dose is 1.2.4 requires use 0.2 mrad for gam dose limits in the re defined by the f	L 3.11.2.2) limits the timated annual i limited to 20 of radwaste system i uma and 0.4 mrad for e unrestricted area du following equations:
8.3.1.1.1 Gamma Radiation Quarter Limit		
3.17E - 8 $\sum_{i} \left[M_{i} \left[(\overline{X/Q})_{V} Q_{iV} + (\overline{X/q})_{V} q_{iV} \right] + \left[B_{i} Q_{iV} \right] \right]$	$\mathbf{b}_{\mathbf{i}\mathbf{S}} + \mathbf{b}_{\mathbf{i}}\mathbf{q}_{\mathbf{i}\mathbf{S}} \end{bmatrix} \leq 5\mathbf{r}$	nrad [2.3-1]
8.3.1.1.2 Beta Radiation Quarter Limit		
$3.17E - 8\sum_{i} N_{i} \left[(\overline{X/Q})_{V} Q_{iV} + (\overline{X/q})_{V} q_{iV} + (\overline{X/Q}) \right]$	$Q_{is} Q_{is} + (\overline{X/q})_{s} q_{i}$	$ s \le 10 \text{ mrad} [2.3-2]$
8.3.1.1.3 Gamma Radiation Year Limit		
3.17E-8 $\sum_{i} [M_{i}[(\overline{X/Q})_{v} Q_{iv} + (\overline{X/q})_{v} q_{iv}] + [B_{i}Q_{iv}]$	$(\mathbf{s} + \mathbf{b}_{i} \mathbf{q}_{is})] \leq 10 r$	nrad
8.3.1.1.4 Beta Radiation Year Limit		
$3.17E - 8 \sum_{i} N_{i} \left[(\overline{X/Q})_{V} Q_{iV} + (\overline{X/Q})_{V} + (\overline{X/Q})_{V} Q_{iV} + (\overline{X/Q})_{V} + $	$Q_{s}Q_{is} + (\overline{X/q})_{s}q_{is}$	$\left s \right \le 20 \text{ mrad}$
1		[2.3-4]
8.3.1.1.5 Gamma Radiation Projection Average	ed Over 31 Days	i
$3.17E - 8\sum_{i} \left[M_{i} \left[(\overline{X/Q})_{V} Q_{iV} + (\overline{X/q})_{V} q_{iV} \right] + \left[B_{i} Q_{iV} \right] \right]$	$ \mathbf{b}_{is} + \mathbf{b}_{i}\mathbf{q}_{is} \le 0.2$	2 mrad [2.3-5]

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	8.3.1.1.6]	Beta Radiation Projection Averaged Over 31	Days	
	3.17E – 8	β∑ i	$N_{i} \left[(\overline{X/Q})_{v} Q_{iv} + (\overline{X/q})_{v} q_{iv} + (\overline{X/Q})_{s} Q_{is} \right]$	$+(\overline{X/q})_{s}q_{i}$	$s \le 0.4 \text{ mrad} [2.3-6]$
	where:				
	M_i .	=	The air dose factor due to gamma emissions fradionuclide "i" (mrad/yr per uCi/m ³).	for each ide	entified noble gas
	Ni	=	The air dose factor due to beta emissions for radionuclide "i" (mrad/yr per uCi/m ³).	each identi	fied noble gas
	$(\overline{X/Q})_v$	=	The annual average relative concentration for unrestricted area boundary for long-term vent hrs/year (sec/m ³).	r areas at o t releases g	r beyond the reater than 500
	$(\overline{X/q})_{v}$	=	The relative concentration for areas at or beyo boundary for short-term vent releases equal to (sec/m^3) .	ond the uni o or less th	restricted area an 500 hrs/year
	$(\overline{X/Q})_{s}$	=	The annual average relative concentration for unrestricted area boundary for long-term free than 500 hrs/year (sec/m ³).	areas at or standing s	r beyond the tack releases greater
	$(\overline{X/q})_s$	=	The relative concentration for areas at or beyo boundary for short-term free standing stack re- hrs/year (sec/ m^3).	ond the unreleases equ	restricted area al to or less than 500
	q _{is}	=	Release of noble gas radionuclide "i" in gased stack releases equal to or less than 500 hrs/ye	ous effluen ar (uCi).	ts for short-term
	q_{iv}	=	Release of noble gas radionuclide "i" in gased releases equal to or less than 500 hrs/year (uC	ous effluen Ci).	ts for short-term vent
	Q_{is}	=	Release of noble gas radionuclide "i" in gased standing stack releases greater than 500 hrs/ye	ous effluent ear (uCi).	ts for long-term free
	Q_{iv}	=	Release of noble gas radionuclide "i" in gased releases greater than 500 hrs/year (uCi).	ous effluent	ts for long-term vent
	B _i	=	The constant for long-term releases (greater the identified noble gas radionuclide "i" accounting from the elevated finite plume (mrad/yr per utility)	nan 500 hrs ng for the g Ci/sec).	s/year) for each gamma radiation

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b_i = The constant for short-term releases (equal to or less than 500 hrs/year) for each identified noble gas radionuclide "i" accounting for the gamma radiation from the elevated finite plume (mrad/yr per uCi/sec).

3.17E-8 = The inverse of the number of seconds in a year.

NUREG 0133^(3.1.3.1) permits eliminating the short-term release term and short-term meteorological terms in the determination of doses when short-term releases are sufficiently random in both time of day and duration to be represented by annual average dispersion conditions. This special consideration is applied in Equations [2.3-1] through [2.3-6], however, a summary of the "real time" meteorological data coupled with the corresponding releases shall be included in the Annual Radioactive Effluent Release Report.

Short-term releases are also evaluated annually in computer codes technically consistent with XOQDOQ and GASPAR for inclusion in the Annual Radiological Environmental Report.

The incorporation of this option and the Release Modes of ATTACHMENT I Table 2.3-1 results in the following equations to show compliance with 10 CFR 50 for the calendar quarter or year.

8.3.1.1.7 Gamma Radiation Dose Equation

$$3.17E - 8 \sum_{i} [M_{i} [(\overline{X/Q})_{cv} Q_{i} + (\overline{X/Q})_{vv} Q_{i} + (\overline{X/Q})_{cb} Q_{i} + (\overline{X/Q})_{dv} Q_{i} + (\overline{X/Q})_{wv} Q_{i}] + 0.5 B_{i} Q_{i}]$$

$$(\overline{X/Q})_{wv} Q_{i} + 0.5 B_{i} Q_{i}]$$

$$[2.3-7]$$

 \leq 0.2 mrad (per 31 days), or \leq 5.0 mrad (per quarter), or \leq 10.0 mrad (per year)



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For Release Modes 1, 2, 3, and 4 the controlling location is 0.35 miles NW. Substitution of the appropriate X/Q values into Equations [2.3-7] and [2.3-8] results in the following:

8.3.1.1.9 Gamma Radiation Dose Determination

 $3.17E - 8 \sum_{i} [M_{i}[9.24E - 5Q_{i} + 1.03E - 4Q_{i} + 7.35E - 5Q_{i} + 7.35E - 5Q_{i}]_{tv} + 7.35E - 5Q_{i}]_{cb} +$

$$9.24E - 5Q_{i_{dv}} + 9.24E - 5Q_{i_{wv}}] + 0.5B_{i}Q_{i_{pv}}$$
 [2.3-9]

 \leq 0.2 mrad (per 31 days), or

 \leq 5.0 mrad (per quarter), or

 $\leq 10.0 \text{ mrad} (\text{per year})$

8.3.1.1.10 Beta Radiation Dose Determination

$$3.17E - 8 \sum_{i} N_{i} [9.24E - 5Q_{i} + 1.03E - 4Q_{i} + 7.35E - 5Q_{i} + 7.35E - 5Q_{i} + 7.35E - 5Q_{i} + 9.24E - 5Q_{i} + 9.24E - 5Q_{i} + (0.5) 7.0E - 10Q_{i} = [2.3-10]$$

$$9.24E - 5Q_{i_{dv}} + 9.24E - 5Q_{i_{wv}} + (0.5)7.0E - 10Q_{i_{pv}}] \qquad [2.3-10]$$

 \leq 0.4 mrad (per 31 days), or \leq 10.0 mrad (per quarter), or \leq 20.0 mrad (per year)

8.3.1.1.11 Determination of Controlling Location

The determination of the controlling locations for implementation of 10 CFR 50 is a function of the following parameters:

- Radionuclide mix and their isotopic release
- Release Mode
- Meteorology

The incorporation of these parameters into Equations [2.3-7] and [2.3-8] resulted in the equations for the controlling locations as presented in Equations [2.3-9] and [2.3-10]. The radionuclide mix was based upon source terms calculated using the NRC GALE Code (see 1/2-ODC-3.01 for inputs) and are shown in ATTACHMENT D Tables 2.2-2a and 2.2-2b as a function of release type and Release Point.

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As in Section 8.2.1, for each Release Mode, the two highest boundary X/Q values for each release point and release duration were utilized in conjunction with the radionuclide mix and release for each release point to determine the controlling site boundary location. Since elevated releases occur from the BVPS site and their maximum X/Q values may not decrease with distance (i.e., the site boundary may not have highest X/Q values), the two highest X/Q values for those distances, greater than the site boundary, were also considered in conjunction with the radionuclide mix to determine the controlling location. These values of X/Q were obtained for the midpoint of the 10 standard distance intervals previously presented in ATTACHMENT F Tables 2.2-4 through 2.2-10.

For each Release Mode, a particular combination of Release Point mix and meteorology dominates in the determination of the controlling location. For Release Modes 1, 2, 3, and 4 the controlling release is VV-1 and VV-2. For Release Mode 3, the controlling release is CV-1 and CV-2.

Values for M_i and N_i , which were used in the determination of the controlling location and which are to be used by BV-1 and BV-2 in Equations [2.3-9] and [2.3-10] to show compliance with 10 CFR 50 were presented in ATTACHMENT G Table 2.2-11. Values taken from Table B-1 of Regulatory Guide 1.109, Revision $1^{(3.1.3.5)}$ were multiplied by 1E6 to convert from picocuries to microcuries for use in ATTACHMENT G Table 2.2-11.

In determination of the controlling location for Release Modes 1, 2, 3, and 4, ATTACHMENT F Tables 2.2-4 through 2.2-7 are utilized for X/Q values. The B_i values to be utilized are the same values which were presented in ATTACHMENT G Table 2.2-12. A description of the derivation of the various X/Q values is presented in 1/2-ODC-3.01.

The following relationship must hold for BV-1 or BV-2 to show compliance with ODCM CONTROL 3.11.2.2:

For The Calendar Quarter

$D_{\gamma} \leq 5.0 \text{ mrad}$	[2.3-11]
$D_\beta \leq 10 \ mrad$	[2.3-12]
For The Calendar Year	
$D_{\gamma} \leq 10 \text{ mrad}$	[2.3-13]
$D_{\beta} \leq 20 mrad$	[2.3-14]
where:	
D_{y} = The air dose from gamma radiation (mrad).	

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	D_{β} = The air dose from beta radia	ation (mrad).	
	The quarterly limits given above represent of Section II.B.1 of Appendix I of 10 CFI [2.3-11] through [2.3-14] are exceeded, a Section IV.A of Appendix I of 10 CFR 50 must be filed with the NRC at the identified	nt one-half the ar R 50. If any of t special report p 0 and ODCM CO ied locations.	nnual design objectiv he limits of Equation ursuant to both DNTROL 3.11.2.2.a
	In addition, ODCM CONTROL 3.1.2.4 re system must be used to reduce radioactive projected doses from each reactor unit wh of the following:	equires that the g e materials in that nen averaged over	gaseous radwaste at waste when er 31 days exceed an
	$D_{\gamma} \leq 0.2 \text{ mrad}$		[2.3-15]
	$D_{\beta} \leq 0.4 \text{ mrad}$		[2.3-16]
8.3.1.2 <u>Pr</u>	ojection Of Doses (Noble Gas)		
Do per see Ra	oses due to gaseous releases from BV-1 and E r 31 days in accordance with ODCM CONTR e Section 8.3.2.2 <u>Projection Of Doses</u> for add adwaste Treatment System and the Ventilation ed to reduce radioactive materials in gaseous	BV-2 shall be pro ROL 4.11.2.4 and itional specificat n Exhaust Treatr waste prior to th	ojected at least once d this section. (Also ions). The Gaseous nent System shall be
use acc do day (A dos and acc	cordance with ODCM CONTROL 3.11.2.4 wase due to gaseous effluent releases from each ys, would exceed 0.2 mrad for gamma radiati lso see Section 8.3.2.2 <u>Projection Of Doses</u> for ses used in the 31-day dose projection will be d [2.3-10] as appropriate. The 31-day dose proceeding to the following equations:	when the projected reactor unit, which ion and 0.4 mrad or additional spee e calculated using rojection shall be	eir discharge in d gaseous effluent a en averaged over 31 for beta radiation. cifications). The g Equations [2.3-9] e performed
end use acc do day (A dos and acc 8.3.1.2.1	cordance with ODCM CONTROL 3.11.2.4 w see due to gaseous effluent releases from each ys, would exceed 0.2 mrad for gamma radiati lso see Section 8.3.2.2 <u>Projection Of Doses</u> for ses used in the 31-day dose projection will be d [2.3-10] as appropriate. The 31-day dose pro- cording to the following equations: <u>When Including Pre-Release Data</u> ,	when the projected reactor unit, which ion and 0.4 mrad or additional speed calculated using rojection shall be	eir discharge in d gaseous effluent ai en averaged over 31 for beta radiation. cifications). The g Equations [2.3-9] e performed
acu do day (A do: and acc 8.3.1.2.1	cordance with ODCM CONTROL 3.11.2.4 w see due to gaseous effluent releases from each ys, would exceed 0.2 mrad for gamma radiati lso see Section 8.3.2.2 <u>Projection Of Doses</u> fi ses used in the 31-day dose projection will be d [2.3-10] as appropriate. The 31-day dose pro- cording to the following equations: <u>When Including Pre-Release Data</u> , $D_{31} = \left[\frac{A+B}{T}\right](31) + C$	when the projected reactor unit, which and 0.4 mrad for additional spected using rojection shall be	eir discharge in d gaseous effluent a en averaged over 31 for beta radiation. cifications). The g Equations [2.3-9] e performed [2.3-17]
1.44 use acc do day (A do: and acc 8.3.1.2.1 8.3.1.2.2	cordance with ODCM CONTROL 3.11.2.4 w see due to gaseous effluent releases from each ys, would exceed 0.2 mrad for gamma radiati lso see Section 8.3.2.2 <u>Projection Of Doses</u> for ses used in the 31-day dose projection will be d [2.3-10] as appropriate. The 31-day dose pro- cording to the following equations: $\frac{\text{When Including Pre-Release Data},}{D_{31} = \left[\frac{A+B}{T}\right](31) + C}$ When Not Including Pre-Release Data,	when the projected reactor unit, which and 0.4 mrad for additional speeder calculated using rojection shall be	eir discharge in d gaseous effluent a en averaged over 31 for beta radiation. cifications). The g Equations [2.3-9] e performed [2.3-17]

 D_{31} = Projected 31 day dose (mrad).

A = Cumulative dose for quarter (mrad).

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B = Projected dose from this release (mrad).		
T = Current days into quarter.		
C = Value which may be used to anticipate pla	nt trends (m	nrad).
8.3.2 Dose Due To Radioiodines And Particulates		

8.3.2.1 Cumulation Of Doses

Section II.C of Appendix I of 10 CFR 50 (ODCM CONTROLS 3.11.2.3 and 3.11.2.4) limits the release of radioiodines and radioactive material in particulate form from each reactor unit such that estimated dose or dose commitment to an individual in an unrestricted area from all pathways of exposure is not in excess of 15 mrem to any organ. In addition, ODCM CONTROL 3.11.2.4 requires the use of gaseous radwaste treatment system when the projected dose due to gaseous effluent releases from each reactor unit, when averaged over 31 days, would exceed 0.3 mrem to any organ. Based upon NUREG-0133,^(3.1.3.1) the dose to an organ of an individual from radioiodines and particulates, and radionuclides other than noble gases with half-lives greater than 8 days in gaseous effluents released to unrestricted areas, can be determined by the following equation:

8.3.2.1.1 Radioiodines and Particulates Month, Quarter, and Year Limits

 $3.17E - 8 \sum_{i} R_{i\tau} [W_{s}Q_{is} + w_{s}q_{is} + W_{v}Q_{iv} + w_{v}q_{iv}]$

 ≤ 0.3 mrem (per 31 days), or [2.3-19] ≤ 7.5 mrem (per quarter), or ≤ 15.0 mrem (per calendar year)

where:

- Q_{is} = Release of radionuclide "i" for long-term free standing stack releases greater than 500 hrs/yr (uCi).
- Q_{iv} = Release of radionuclide "i" for long-term vent releases greater than 500 hrs/yr (uCi).
- q_{is} = Release of radionuclide "i" for short-term free standing stack releases equal to or less than 500 hrs/yr (uCi).
- q_{iv} = Release of radionuclide "i" for short-term vent releases equal to or less than 500 hrs/yr (uCi).
- w_s = Dispersion parameter for estimating dose to an individual at the controlling location for long-term free standing stack releases greater than 500 hrs/yr.

*

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= s	sec/m ³ for the inhalation path	way, (W/Q	()s.
. = r.	neters ⁻² for the food and grou	nd plane p	athway, $(\overline{D/Q})$ s.
$W_v = T$	The dispersion parameter for ndividual at the controlling lo releases greater than 500 hrs/y	estimating ocation for vr.	the dose to an long-term vent
= s	ec/m ³ for the inhalation pathy	way, (X/Q)v.
	neters ⁻² for the food and grou	nd plane p	athway, $(\overline{D/Q})_{v}$.
$w_s = I$	Dispersion parameter for estinut the controlling location for o or less than 500 hrs/yr.	nating the short-term	dose to an individual stack releases equal
= s	ec/m ³ for the inhalation pathy	way, (W/q)s.
	neters ⁻² for the food and grou	nd plane p	athway, $(\overline{D/q})_{s}$.
$w_v = T$	The dispersion parameter for endividual at the controlling lo eleases equal to or less than 5	estimating ocation for 500 hrs/yr.	the dose to an short-term vent
= s	ec/m ³ for the inhalation pathy	way, $(\overline{X/q})$) _v .
= n	neters ⁻² for the food and grout	nd plane p	athway, $(\overline{D/q})_{v}$.
3.17E-8 = T	The inverse of the number of s	seconds in	a year.
$R_{i\tau} = T$	The dose factor for each idention τ^{-1} of interest (mrem/yr ver uCi/m ³).	ified radion per uCi/se	nuclide "i" for the ec per m ⁻² or mrem/yr
Radionuclides and 2 Release Points in 2.3-1. As describe use of long-term an release modes of T compliance with C organ, Equation [2	particulates may be released in the Release Modes identifie ed previously in Section 8.3.1 innual average dispersion calc Cable 2.3-1 results in the follo DDCM CONTROLS 3.11.2.3 2.3-19] becomes:	from any d in ATTA .1, NURE ulations (v wing equa and 3.11.2	of the BV-1 and BV- ACHMENT I Table G 0133 ^(3.1.3.1) permits which with the tions) to show 2.4. For a particular
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8.3.2.1.2 Radioiodi	nes and Particulates Dose Equation	<u>)n</u>	
$3.17E - 8 \sum_{i} R_{i\tau} [0.5 V]$	$W_{pv}Q_{i_{pv}} + W_{cv}Q_{i_{cv}} + W_{vv}Q_{i_{vv}}$	$+ W_{tv}Q_{i_{tv}}$	$+ W_{cb}Q_{i_{cb}} +$
W _{dv} Q	$P_{i_{dv}} + W_{WV} Q_{i_{WV}}$]		[2.3-20]
≤ 0.3 mrer ≤ 7.5 mrer ≤ 15.0 mre	n (per 31 days), or n (per quarter), or m (per calendar year)		
where:			
0.5 W _{pv}	 Dispersion parameter for rele 0.5 represents the portion of o this being a shared Release P 	ases from F lose assigne oint	PV-1/2. The value of ed to each Unit due to
W _{cv}	= Dispersion parameter for rele	ases from C	CV-1 and CV-2.
W_{vv}	= Dispersion parameter for rele	ases from V	/V-1 and VV-2.
W _{tv}	= Dispersion parameter for rele	ases from T	V-2.
W _{cb}	= Dispersion parameter for rele	ases from C	CB-2.
W _{dv}	= Dispersion parameter for rele	ases from L) V-2.
W _{wv}	= Dispersion parameter for rele	ases from V	WV-2.
Q _i	= Release of radionuclide "i" fr	om PV-1/2	(uCi).
Q _i	= Release of radionuclide "i" fr	om CV-1 ai	nd CV-2 (uCi).
Q _i	= Release of radionuclide "i" fro	om VV-1 a	nd VV-2 (uCi).
Q _i tv	= Release of radionuclide "i" fro	om TV-2 (u	ıCi).
Q _i	= Release of radionuclide "i" fro	om CB-2 (u	Ci).
Q _i	= Release of radionuclide "i" fro	om DV-2 (ι	ıCi).

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= Release of radionuclide "i" from WV-2 (uCi).

TV-2, CB-2, DV-2 and WV-2 are not normally radioactive Release Points. These are included only for use if a radioactive release is identified in the future.

In determining the dose at a particular location, dispersion parameter W is a function of the pathway. For the food and ground plane pathway, W is in terms of D/Q. If the inhalation pathway is considered, W is in terms of X/Q. Incorporation of the various pathways into Equation [2.3-20] results in the following equation for a particular organ:

8.3.2.1.2.1 Radioiodines and Particulates Dose Determination

$7E - 8\sum_{i} [[R_{i\tau_{G}} + R_{i\tau_{M}} + R_{i\tau_{v}} + R_{i\tau_{B}}][0.5 W_{pv}Q_{i_{pv}} + W_{cv}Q_{i_{cv}} +$
$W_{vv}Q_{i_{vv}} + W_{tv}Q_{i_{tv}} + W_{cb}Q_{i_{cb}} + W_{dv}Q_{i_{dv}} + W_{wv}Q_{i_{wv}}]$
+ $R_{i\tau_1} [0.5(X/Q)_{pv}Q_{i_{pv}} + (X/Q)_{cv}Q_{i_{cv}} + (X/Q)_{vv}Q_{i_{vv}} +$
$(X/Q)_{tv}Q_{i_{tv}} + (X/Q)_{cb}Q_{i_{cb}} + (X/Q)_{dv}Q_{i_{dv}} + (X/Q)_{wv}]$
Q _{iwv}] [2.3-21]

 \leq 0.3 mrem (per 31 days), or \leq 7.5 mrem (per quarter), or < 15.0 mrem (per year)

where:

Q

- $R_{i\tau_G}$ = Dose factor for an organ " τ " for radionuclide "i" for the ground plane exposure pathway (mrem/yr per uCi/sec per m⁻²).
- $R_{i\tau_{M}}$ = Dose factor for an organ " τ " for radionuclide "i" for either the cow milk or goat milk pathway (mrem/yr per uCi/sec per m⁻²).

$$R_{i\tau_v}$$
 = Dose factor for an organ " τ " for radionuclide "i" for the vegetable pathway (mrem/yr per uCi/sec per m⁻²).

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$R_{i\tau} = Dose factor for an organ "\tau" for$	radionuclio	de "i" for the meat	
pathway (mrem/yr per uCi/sec	per m ⁻²).		
$R_{i\tau} = Dose factor for an organ "\tau" for$	radionuclio	de "i" for the	
inhalation pathway (mrem/yr po	er uCi/m ³).		
It should be noted that W_{pv} , W_{cv} , W_{vv} , W_{tv} , W_{cp} , W_{dv} , and W_{wv} in Equation [2.3-21] are in terms of $D/Q(m^{-2})$.			
Values of the dose factor, $R_{i\tau}$, were calculated NUREG-0133. ^(3.1.3.1) The following equations except tritium:	using the m were used f	ethodology of for all nuclides	
8.3.2.1.2.2 Dose Factors For Inhalation Pathway			
$R_{i\tau_{1}} = K'(BR)_{a}(DFA_{i\tau})_{a}$			
= mrem/yr per uCi/m ³		[2.3-22]	
where:			
K' = A constant of unit conversion	on (1E6 pCi	/uCi).	
$(BR)_a$ = The breathing rate of the red	ceptor of ag	e group "a" (m ³ /yr).	
$(DFA_{i\tau})_a = Each organ inhalation dose group "a" for the "i" th radic dose factors (DFA_{it}) by organe given in Table E-7 throw 1.109, Rev. 1(3.1.3.5) or Table 0172.(3.1.3.6)$	factor for th onuclide (m gan for the v gh E-10 of s 5 through	ne receptor of age rem/pCi). Inhalation various age groups Regulatory Guide 8 of NUREG-	
The breathing rates (BR)a used for the various as given in Table E-5 of the Regulatory Guide	age groups 1.109. ^(3.1.3.5)	are tabulated below,	
Age Group(a) Breathing Rate (m ³ /yr)			
Infant 1400			
Child 3700			
Teen 8000			
Adult 8000			
8.3.2.1.2.3 Dose Factors For Ground Plane Pathw	<u>ay</u>		

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	$R_{i\tau_G} = K'$	K" (SF)DFG _i [(1 - $e^{-\lambda}i^t$)/ λ_i]		<u>57 or 120</u>
	$= m^2 - r$	nrem/yr per uCi/sec		[2.3-23]
	where:			
	K'	= A constant of unit convers	ion (1E6 p (Ci/uCi).
	К″	= A constant of unit convers	ion (8760 h	r/year).
	λί	= The decay constant for the	e "i" th radio	onuclide (sec ⁻¹).
	t	= The exposure time $(4.73E)$	8 sec or 15	years).
:	DFG _i	= The groundplane dose con the "i" th radionuclide (mr of $DFG_{i\tau}$ values is present Guide 1.109. ^(3.1.3.5)	version fact em/hr per p ed in Table	for for organ "τ" for Ci/m ²). A tabulation E-6 of Regulatory
	SF	The shielding factor (dime 0.7 as suggested in Table) is used. ^(3.1.3.5)	ensionless). E-15 of Reg	A shielding factor of ulatory Guide 1.109
8.3.2.1.2.4	Dose	Factors For Cow Milk or Goat	<u>Milk Pathw</u>	<u>ay</u>
	R _{ir_M} =	$K' \frac{Q_{F}(U_{ap})}{\lambda_{i} + \lambda_{w}} F_{m}(r) (DFL_{ir})_{a} \left[\frac{f_{p}f_{s}}{Y_{p}} + \frac{1}{N_{p}} \right]$	$\frac{\left(l-f_{p}f_{s}\right)e^{\frac{1}{2}}}{Y_{s}}$	$\frac{\partial^{\lambda} i^{t} h}{dt^{t}} \bigg] e^{-\lambda} i^{t} f$
	==	m ² -mrem/yr per uCi/sec		[2.3-24]
	where:			
	K′	= A constant of unit convers	ion (1E6 pC	Ci/uCi).
	QF	= The animal's consumption	rate, wet w	eight (kg/day).
	U _{ap}	= The receptor's milk consur	nption rate,	for age "a" (liters/yr).
	Y _p	 The agricultural productive grass (kg/m2). 	ity by unit a	rea of pasture feed
	Ys	 The agricultural productive (kg/m2). 	ity by unit a	rea of stored feed
	F _m	= The stable element transfer	r coefficient	s (days/liter).

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Г	-	Fraction of deposited activit grass.	y retained	on animals feed
(DFL _{it})a	=	The maximum organ ingesti radionuclide for the receptor Ingestion dose factors (DFI are given in Table E-11 thro $1.109^{(3.1.3.5)}$ or Tables 1 thro	ion dose fa r in age gro _{-iτ}) _a for the ough E-14 ugh 4 of N	ctor for the "i" th oup "a" (mrem/pCi). e various age groups of Regulatory Guide UREG-0172. ^(3.1.3.6)
λ_{i}	=	The decay constant for the	"i" th radio	onuclide (sec-1).
λw	=	The decay constant for remo plant surfaces by weathering to a 14 day half-life).	oval of acti g 5.73E-7 s	vity on leaf and sec ⁻¹ (corresponding
tf	=	The transport time from past receptor (sec).	ture, to ani	mal, to milk, to
t _h	=	The transport time from pass milk, to receptor (sec).	ture, to har	vest, to animal, to
_ f _p	=	Fraction of the year that the (dimensionless).	animal is o	on pasture
$\mathbf{f_s}$	Ξ	Fraction of the animal feed t animal is on pasture (dimension	hat is past sionless).	ure grass while the
Tabulated beloreference to R	ow a Legul	tre the parameter values used latory Guide 1.109. ^(3.1.3.5)	for cow's i	nilk and their

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Parameter	Value	<u>R</u>	G. 1.109 Table
r (dimensionless)	1.0 for radioiodine 0.2 for particulates	E-15 E-15	
F _m (days/liter)	each stable element	E-1 (c E-2 (g	ow milk) goat milk)
U _{ap} (liters/yr) - infant child teen adult	330 330 400 310	E-5 E-5 E-5 E-5	
(DLF _{it}) _a (mrem/pCi)	each radionuclide	E-11 t	o E-14
$Y_p (kg/m^2)$	0.7	E-15	
$Y_s (kg/m^2)$	2.0	E-15	
t _f (seconds)	1.73E5 (2 days)	E-15	
t _h (seconds)	7.78E6 (90 days)	E-15	
Q _F (kg/day)	50	E-3	
f_p	0.5		
f_s	1.0		

For goat's milk, all values remain the same except for Q_F , which is 6 kg/day.

8.3.2.1.2.5

Dose Factors For Meat Pathway

$$R_{i\tau_{B}} = K' \frac{Q_{F} \left(U_{ap} \right)}{\lambda_{i} + \lambda_{W}} F_{f}(r) (DFL_{i\tau})_{a} \left[\frac{f_{p}f_{s}}{Y_{p}} + \frac{\left(1 - f_{p}f_{s} \right)e^{-\lambda_{i}t}h}{Y_{S}} \right] e^{-\lambda_{i}t}f$$
$$= m^{2} - mrem/yr per uCi/sec \qquad [2.3-25]$$

where:

 F_f = The stable element transfer coefficients (days/kg).

 U_{ap} = The receptor's meat consumption rate for age "a" (kg/yr).

 t_f = The average time from slaughter of meat animal to consumption (sec).

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 t_h = The transport time from crop field to receptor (sec).

All parameter values are the same as the milk pathway parameter values except F_f which is obtained from Table E-1. Parameter t_f is obtained from Table E-15, and U_{ap} is obtained from Table E-5. These values, as obtained from Regulatory Guide 1.109,^(3.1.3.5) are as follows:

Parameter	Value	RG-1.109 Table
F _f (days/kg)	each stable element	E-1
t _f (seconds)	1.73E6 (20 days)	E-15
U _{ap} (kg/yr) - infant Child Teen Adult	0 41 65 110	E-5 E-5 E-5 E-5

Man is considered to consume 2 types of vegetation (fresh and stored) that differ only in the time period between harvest and consumption; therefore:

8.3.2.1.2.6

Dose Factors For Vegetation Pathway

$$R_{i\tau_{v}} = K' \left[\frac{(r)}{Y_{v} (\lambda_{i} + \lambda_{w})} \right] (DFL_{i\tau})_{a} \left[U_{a}^{L} f_{L} e^{-\lambda_{i} t} L + U_{a}^{S} f_{g} e^{-\lambda_{i} t} h \right]$$

where:

K' = A constant of unit conversion (1E6 pCi/uCi).

 U_a^L = The consumption rate of fresh leafy vegetation by the receptor in age group "a" (kg/yr).

[2.3-26]

- U_a^S = The consumption rate of stored vegetation by the receptor in age group "a" (kg/yr).
- f_L = The fraction of the annual intake of fresh leafy vegetation grown locally.

 f_g = The fraction of the annual intake of stored vegetation grown locally.

t_L = The average time between harvest of leafy vegetation and its consumption (seconds).

Beaver Valley Powe	er Station	Procedure Nu	$\frac{1}{2} = 0 + 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0$
itle:		Unit:	Level Of Use:
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t _h = The aver consump	rage time between harvest option (seconds).	of stored veg	getation and its
Y_v = The veg	etation area density (kg/m ²)).	
all other factors are de	efined previously.		
Tabulated below are t Regulatory Guide 1.1	the appropriate parameter v 09. ^(3.1.3.5)	alues and th	eir reference to
Parameter	Value	RG	-1.109 Table
r (dimensionless)	1.0 for radioiodines	E-15	
	0.2 for particulates	E-15	
(DFL _{it}) _a (mrem/pCi)	each stable element	E-11 to	E-14
U_a^L (kg/yr) -infant	0	E-5	
Child	26	E-5	
teen	42	E-5	
adult	64	E-5	
U_{a}^{S} (kg/yr) - infant	0	E-5	
a	520	E-5	
teen	630	E-5	
adult	520	E-5	
f_L (dimensionless)	1.0	E-15	
Fg (dimensionless)	0.76	E-15	
t_{L} (seconds)	8.6E4 (1 day)	E-15	
t _h (seconds)	5.18E6 (60 days)	E-15	
$Y_{\rm V} ({\rm kg/m}^2)$	2.0	E-15	

As discussed in Section 8.2.2 for tritium, the parameter W for the food pathway is based upon X/Q. The ground plane pathway is not appropriate for tritium. Therefore, the left-hand portion of Equation [2.3-20] may be expressed for purposes of implementation of 40 CFR 190, discussed in 1/2-ODC-2.04, as follows:

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8.3.2.1.2.7 <u>Tritium Dose Equation</u>		
3.17E - 8 ($R_{T\tau_{M}} + R_{T\tau_{V}} + R_{T\tau_{B}} + R_{T\tau_{1}}$) [0.5 (X/Q)]	_{pv} Q _{T_{pv}} +	(X/Q) _{cv} Q _{T_{cv}} +
$(X/Q)_{vv}Q_{T_{vv}} + (X/Q)_{tv}Q_{T_{tv}} + (X/Q)_{cb}Q_{\tau_{cb}} + (X/Q)$	dvQ _t dv +	- (X/Q) _{wv} Q _{τwv}]
		[2.3-27]
where:		
$R_{T\tau_M}$ = Dose factor for organ " τ " for tritium for the n uCi/m ³).	nilk pathw	ay (mrem/yr per
$R_{T\tau_V}$ = Dose factor for organ " τ " for tritium for the v uCi/m ³).	egetable p	athway (mrem/yr per
$R_{T\tau_B}$ = Dose factor for organ " τ " for tritium for the b uCi/m ³).	eef pathwa	ay (mrem/yr per
$R_{T\tau_1}$ = Dose factor for organ " τ " for tritium for the in uCi/m^3).	nhalation p	athway (mrem/yr per
Equation [2.3-27] is used to show compliance with 40 CFI ODC-2.04.	R 190, as c	liscussed in 1/2-
The concentration of tritium in milk is based on the airborn deposition. Therefore, the $^{R}T\tau_{M}$ is based on [X/Q]:	ne concent	ration rather than the
8.3.2.1.2.8 Tritium Dose Factors For Milk Pathwa	Y	
$R_{T\tau_M} = K'K''F_mQ_FU_{ap}(DLF_{i\tau})_a[0.75(0.5/H)]$		
= mrem/yr per uCi/m ³		[2.3-28]
where:		
K'' = A constant of unit conversion (1000 gm/kg).		
H = Absolute humidity of the atmosphere (8 gm/m)	1 ³).	
0.75 = The fraction of total feed that is water.		
0.5 = The ratio of the specific activity of the feed gr water.	ass water t	to the atmospheric

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and other parameters and values are the same as for $R_{i\tau_M}$.

The concentration of tritium in vegetation is based on the airborne concentration rather than the deposition. Therefore, the $R_{t\tau_v}$ is based on [X/Q]:

8.3.2.1.2.9 Tritium Dose Factors For Vegetation Pathway

$$R_{T\tau_{V}} = K'K'' \left[U_{a}^{L}f_{L} + U_{a}^{S}f_{g} \right] \left(DFL_{i\tau} \right)_{a} \left[0.75(0.5/H) \right]$$

= mrem/yr per uCi/m³ [2.3-29]

where all terms have been defined above.

The concentration of tritium in meat is based on its airborne concentration rather than the deposition. Therefore, the $RT\tau_B$ is based on [X/Q]:

8.3.2.1.2.10 Tritium Dose Factors For Beef Pathway

$$R_{T\tau_{B}} = K'K''F_{f}Q_{F}U_{ap}(DFL_{i\tau})_{a} [0.75(0.5/H)]$$

= mrem/yr per uCi/m³ [2.3-30]

where all terms have been defined above.

To show compliance with ODCM CONTROLS 3.11.2.3 and 3.11.2.4, Equation [2.3-21] is evaluated at the controlling pathway location. For Release Modes 1 through 4, the controlling location is a residence 0.89 miles in the NW sector. Inserting appropriate X/Q values from ATTACHMENT F Tables 2.2-4 to 2.2-10 and D/Q values from ATTACHMENT L Tables 2.3-28 to 2.3-34, Equation [2.3-21] becomes:

8.3.2.1.3 Radioiodines and Particulates Dose Determination

$$3.17E - 8 \sum_{i} [[R_{i\tau_{G}} + R_{i\tau_{V}}]][(0.5)4.22E - 10 Q_{ipv} + 1.56E - 8 Q_{cv} + 1.56E - 8 Q_{ivv} + 1.56E - 8 Q_{ivv} + 1.55E - 8 Q_{itv} + 1.55E - 8 Q_{icv} + 1.56E - 8 Q_{idv} + 1.56E - 8 Q_{ivv} + 2.22E - 5 Q_{itv} + 2.00E - 5 Q_{icv} + 2.71E - 5 Q_{ivv} + 2.22E - 5 Q_{itv} + 2.22E - 5 Q_{icv} + 2.00E - 5 Q_{idv}]$$

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	\leq 0.3 mrem (per 31 days), or \leq 7.5 mrem (per quarter), or \leq 15.0 mrem (per year)		[2.3-31]		
	For tritium, for purposes of implementatio 1/2-ODC-2.04, Equation [2.3-28] reduces	n of 40 CFR 19 to:	90, as discussed in		
	$3.17E - 8[R_{T\tau_{V}} + R_{T\tau_{I}}][(0.5)7.30E - 9]$	$Q_{i_{pv}} + 2.00E -$	$-5 Q_{i_{cv}} + 2.71E -$		
	$5Q_{i_{vv}} + 2.22E - 5Q_{i_{tv}} + 2.22E$	$2E - 5Q_{i_{cb}} + 2$	$2.00E - 5Q_{i_{dv}} +$		
	$2.00E - 5 Q_{i_{wv}}$]		[2.3-32]		
8.3.2.1.4	Determination of Controlling Location				
	The determination of a controlling locating	g for implemen	tation of ODCM		

The determination of a controlling locating for implementation of ODCM CONTROLS 3.11.2.3 and 3.11.2.4 for radioiodines and particulates is a function of:

- Radionuclide mix and their isotopic release
- Release Mode
- Meteorology
- Exposure pathway
- Receptor's age

The incorporation of these parameters into Equation [2.3-19] results in the respective equations for each Release Mode at the controlling location.

In determination of the controlling location for each Release Mode, the radionuclide mix of radioiodines and particulates was based upon the source terms calculated using the GALE code. This mix was presented in ATTACHMENT D Tables 2.2-2a and 2.2-2b as a function of Release Mode and Release Point. For the ground plane exposure pathway, all radionculides (excluding H-3 and C-14) were considered in determination of the controlling location. For the inhalation and food pathways H-3 and C-14 were also considered in determination of the controlling location.

In determination of the controlling location for each Release Mode, all of the exposure pathways, as presented in ATTACHMENT E Table 2.2-3, were evaluated. These include cow milk, goat milk, beef and vegetable ingestion and inhalation and ground plane exposure. An infant was assumed to be present at all milk pathway locations. A child was assumed to be present at all vegetable garden and beef animal locations. The ground plane and inhalation exposure pathways were considered to be present at all locations.

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	For determination of the controlling locat for each Release Point and Release Mode and goat milk pathways were selected. The of these locations using the radionuclide reaction ATTACHMENT D Tables 2.2-2a and 2.2 was determined that the controlling location the residence (vegetable garden)/child path	ion, the highest for the vegetab he organ dose v nix and Release 2-2b Based upor on for Release 1 hway.	D/Q and X/Q values ble garden, cow milk, was calculated at each e Points of n these calculations, i Modes 1 through 4 is		
	For Release Modes 1 through 4, the contra and VV-2.	olling Release I	Point and mix is VV-1		
	ATTACHMENT J Tables 2.3-2 through 2 body, GI-LLI, bone, liver, kidney, thyroid plane, inhalation, cow milk, goat milk, ve for the infant, child, teen, and adult age gr These values were calculated using the me 0133 ^(3.1.3.1) using a grazing period of 6 mo	2.3-20 present R l, and lung orga getable, and me roups as approp ethodology deso onths.	Ri values for the total ans for the ground eat ingestion pathways riate to the pathways. cribed in NUREG-		
	In determination of the controlling location ATTACHMENT F Tables 2.2-4 through 2 ATTACHMENT L Tables 2.3-28 through D/Q values. A description of the derivation is presented in 1/2-ODC-3.01.	on for Release M 2.2-10 are utiliz 2.3-34 are utiliz on of the variou	Aodes 1-4, ed for X/Q's, and ized for long term is X/Q and D/Q value		
	Long-term D/Q values for PV-1/2, CV-1, DV-2 AND WV-2 are provided for the mi	CV-2, VV-1, V idpoints of the f	VV-2, TV-2, CB-2, following distances:		
	0.0-0.5 mi., 0.5-1.0 mi., 1.0-1.5 mi., 1.5-2 2.5-3.0 mi., 3.0-3.5 mi., 3.5-4.0 mi., 4.0-4	.0 mi., 2.0-2.5 n .5 mi., 4.5-5.0 n	mi., mi.		
	The values appear in ATTACHMENT K values may be utilized if an additional spe those presented in the special locations of	Tables 2.3-21 tl cial location ar ATTACHMEN	hrough 2.3-27. These ises different from NT E Table 2.2-3.		
	The following relationship must hold for H with ODCM CONTROL 3.11.2.3.	3V-1 or BV-2 t	o show compliance		
	For The Calendar Quarter:				
	$D_\tau \leq 7.5$ mrem to any organ		[2.3-33]		
	For The Calendar Year:				
	$D_\tau \leq 15$ mrem to any organ		[2.3-34]		

.

where:

 D_{τ} = The dose to any organ from radioiodines and particulates (mrem).

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The quarterly limits given above represent one-half the annual design objective of Section II.C of Appendix I of 10 CFR 50. If any of the limits of Equations [2.3-33] and [2.3-34] are exceeded, a Special Report pursuant to both Section IV.A of Appendix I of 10 CFR 50 and ODCM CONTROL 3.11.2.3.a must be filed with the NRC at the identified locations.

8.3.2.2 Projection Of Doses (Radioiodines And Particulates)

Doses due to gaseous releases from BV-1 or BV-2 shall be projected at least once per 31 days in accordance with ODCM CONTROL 4.11.2.4 and this section. (Also see Section 8.3.1.2, <u>Projection Of Doses</u> for additional specifications). The appropriate portions of the Ventilation Exhaust Treatment System shall be used to reduce radioactive materials in gaseous waste prior to their discharge in accordance with ODCM CONTROL 3.11.2.4 when the projected doses due to gaseous effluent releases from each reactor unit, when averaged over 31 days, would exceed 0.3 mrem to any organ. (Also see Section 8.3.1.2, <u>Projection Of Doses</u> for additional specifications). Doses resulting from the gaseous effluent release of radioiodines and particulates will be calculated for use in the 31-day dose projection using Equation [2.3-31]. The 31-day dose projection shall be performed according to the following equations:

8.3.2.2.1 When Including Pre-Release Data,

$$D_{31} = \left[\frac{A+B}{T}\right](31) + C$$
 [2.3-35]

8.3.2.2.2 When Not Including Pre-Release Data,

$$D_{31} = \left[\frac{A}{T}\right](31) + C$$
 [2.3-36]

where:

 D_{31} = Projected 31 day dose (mrem).

A = Cumulative dose for quarter (mrem).

B = Projected dose for this release (mrem).

T = Current days into quarter.

C = Value which may be used to anticipate plant trends (mrem).

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8.4 Gaseous Radwaste System

The gaseous radwaste system has the capability to control, collect, process, store, recycle, and dispose of gaseous radioactive waste generated as a result of plant operations, including anticipated operational occurrences.

A simplified flow diagram of the gaseous radwaste system for BV-1 and BV-2 is provided as ATTACHMENT N Figure 2.4-1. A diagram showing the gaseous effluent Release Points is provided as ATTACHMENT P Figure 2.4-2. Since the concept of a shared gaseous radwaste system is used, then gaseous waste generated can be stored, processed, and discharged from either BV-1 or BV-2.

8.4.1 BV-1 Gaseous Radwaste System Components

8.4.1.1 BR-1EV-2A/2B: Degasifiers

There are two Degasifiers. They are designed to continuously process reactor coolant letdown for reducing entrained noble gases in the liquid.

8.4.1.2 GW-1E-1A/1B: Waste Gas Chillers

There are two Chillers. Non-condensable gases from the degasifiers are directed by. system pressure to the Waste Gas Chillers.

8.4.1.3 GW-1TK-3A thru 3D: Gaseous Waste Charcoal Delay Beds

There are four Charcoal Beds. The dry effluent from the Chillers is directed to the Waste Gas Charcoal Delay Beds for holdup of xenon and krypton and adsorption of radioiodines. When four beds are operated in series, they provide a holdup of xenon isotopes for about 30 days.

8.4.1.4 <u>GW-1FL-5A/5B: Overhead Gas Compressor Prefilters</u>

There are two Prefilters. The gaseous effluent (primarily hydrogen) is directed from the Gaseous Waste Charcoal Delay Beds to one of the Overhead Gas Compressor Prefilters. The filters remove carbon solids from the gas stream.

8.4.1.5 **GW-1C-1A/1B: Gas Compressors**

There are two Compressors. The waste gas enters one of the compressors after passing through the Prefilters.

8.4.1.6 GW-1TK-2: Gaseous Waste Surge Tank

There is one Surge Tank. It has a capacity of 52 cuft. After compression to about 65 psig, the waste gas is sent to the Surge Tank. This can be done automatically or manually.

8.4.1.7 GW-1TK-1A thru 1C: Waste Gas Decay Tanks

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There are three Decay Tanks. Each has a capacity of 132 cuft. The contents of the Surge Tank is transferred to the Decay Tanks for storage and decay. After 30 days of storage, all xenon and iodine should have decayed, and the resulting predominant nuclide should be krypton 85.

8.4.1.8 RM-1GW-108 And RM-1GW-109: Gaseous Effluent Radiation Monitors

There are redundant Radiation Monitors on the combined PV-1/2 Gaseous Waste/Process Vent release path. These Radiation Monitors continuously analyze gaseous waste as it is being discharged. Gaseous Monitor RM-1GW-108B is an offline gamma scintillator, while RM-1GW-109 Channel 5 is an off-line beta scintillator. The upper activity alarm on the gaseous Channels of these Radiation Monitors have setpoints that would indicate we are approaching the Total Body Dose Rate or Skin Dose Rate limits for radioactive gas leaving the site. If an upper activity alarm on RM-1GW-108B is received, it automatically terminates the discharge by closing an isolation valve downstream of the Decay Tanks.

8.4.2 **BV-2 Gaseous Radwaste System Components**

8.4.2.1 **<u>2BRS-EV21A/21B: Degasifiers</u>**

There are four Degasifiers (two at Unit 1 and two at Unit 2). They are designed to continuously process reactor coolant letdown for reducing entrained noble gases in the liquid.

8.4.2.2 2GWS-E21A/21B: Waste Gas Chillers

There are four Chillers (two at Unit 1 and two at Unit 2). Non-condensable gases from the degasifiers are directed by system pressure to the Waste Gas Chillers.

8.4.2.3 2GWS-TK22A thru 22D: Waste Gas Charcoal Delay Beds

There are four Charcoal Beds (four at Unit 1 and four at Unit 2). The dry effluent from the Chillers is directed to the Waste Gas Charcoal Delay Beds for holdup of xenon and krypton and adsorption of radioiodines. When four beds are operated in series, they provide a holdup of xenon isotopes for about 30 days.

8.4.2.4 <u>2GWS-FLT24A/24B: Overhead Gas Compressor Prefilters</u>

There are two Prefilters. The gaseous effluent (primarily hydrogen) is directed from the Waste Gas Charcoal Delay Beds to one of the Overhead Gas Compressor Prefilters. The filters remove carbon solids from the gas stream.

8.4.2.5 2GWS-C21A/21B: Gas Compressors

There are two Compressors. The waste gas enters one of the compressors after passing through the Prefilters.

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8.4.2.6 2GWS-TK21: Gaseous Waste Surge Tank

There is one Surge Tank. It has a capacity of 52 cuft. After compression to about 65 psig, the waste gas is sent to the Surge Tank. This can be done automatically or manually.

8.4.2.7 2GWS-TK25A thru 25G: Gaseous Waste Storage Tanks

There are seven Storage Tanks. Each has a capacity of 132 cuft. The contents of the Surge Tank is transferred to the Storage Tanks for storage and decay. After 30 days of storage, all xenon and iodine should have decayed, and the resulting predominant nuclide should be krypton 85.

8.4.2.8 RM-1GW-108 And RM-1GW-109: Gaseous Effluent Radiation Monitors

Previously described in Section 8.4.1.

- END -

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			ATTACH	MENT A			
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			GASEOUS SO	URCE TERM			
				,	•.		
			TABLE	2.1-1a			
	•			EOD GASEOU	C EFEI HENTO		
		DV-I KADIUN		UON UASEUU,	5 EFFLUENIS		
				y1)			
		RX	AUXILIARY				
		CONTAINMENT/	BUILDING				
		SLCRS VENT	VENT	GASEOUS	WASTE/PROCES	S VENT	
		Long Term, And					
			AUXILIARY	MAIN	CONTAINMENT	GASEOUS	
_		CONTAINMENT	BUILDING	CONDENSER/	VACUUM	WASTE	
Ī	NUCLIDE ⁽²⁾	_BUILDING ⁽¹⁾	VENTILATION	AIR EJECTOR	PUMPS ⁽³⁾	SYSTEM	
		Short Term	Long Term	Long Term	Long Term	Short Term	
]	Kr-83m	2.2E-02	4.2E-01	2.7E-01	5.2E-03	0.0	
]	Kr-85m	1.5E-01	1.9E+00	1.2E+00	5.5E-02	7.3E-02	
]	Kr-85	6.1E+01	2.5E+00	1.6E+00	1.0E+01	2.3E+02	
]	Kr-87	5.4E-02	1.3E+00	8.2E-01	1.1E-02	0.0	
]	K r-88	2.4E-01	3.8E+00	2.4E+00	7.0E-02	0.0	
]	Kr-89	4.7E-04	1.2E-01	7.7E-02	4.3E-05	0.0	
	Xe-131m	7.4E-01	1.3E-01	8.0E-02	1.8E-01	1.3E+00	
	Xe-133m	8.9E-01	8.9E-01	5.6E-01	3.1E-01	0.0	
	Xe-133	8.9E+01	3.6E+01	2.3E+01	2.7E+01	2.3E+01	
	Xe-135m	4.5E-03	3.2E-01	2.0E-01	6.2E-04	0.0	
-	Xe-135	7.0E-01	4.5E+00	2.8E+00	2.7E-01	0.0	
	Xe-137	1.0E-03	2.1E-01	1.3E-01	8.8E-05	0.0	
-	V. 120	1 5E-02	1.1F+00	6.6E-01	1.7E-03	0.0	
-	Ae-138	1.56-02	1.12.00				

(1) Containment can be purged via VV-1 (Auxiliary Building Vent), CV-1 (Rx Containment/SLCRS Vent), or PV-1/2 (Gaseous Waste/Process Vent)

⁽²⁾ Source Term from BVPS-2 UFSAR Table $11.3.1^{(3.1.1.2)}$

(3) Original Source Term from Calculation No. UR(B)-262 was adjusted for a factor of 14 increase in pump flowrate due to installation of high capacity pumps during 1R15. This change in Source Term is documented in Condition Report CR03-04830 and Calculation No. ERS-HHM-87-014.^(3.1.1.5)(3.1.1.8)(3.1.3.10)

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		GASE	OUS SOURCE	TERM			
			TABLE 2.1-1b				
	BV-2 R	ADIONUCLIE	E MIX FOR GA	ASEOUS EI	FFLUENT	S	
	~		(Ci/vr)			-	
	SI CDS	SI CDS	TIDDINE				
	UNEII TEDED	FII TERED	BUILDING				
		PATHWAY	VENT	GASE	OUS WAST	E/PROCESS	VENT
	I ong Term And	TAIIWAI		UABL	003 WASI	LINUCLSC	<u>VLIVI</u>
	Long Terni, And					•	
		AUXILIARY	TURBINE	MAIN	CONT	AINMENT	GASEOUS
NUCLIDE ⁽²	CONTAINMENT	BUILDING	BUILDING	CONDENSE	ER/ VA	CUUM	WASTE
1	BUILDING	VENTILATION	VENTILATION	AIR EJECT	<u>OR PU</u>	MPS ⁽³⁾	<u>SYSTEM</u>
	Short Term	Long Term	Long Term	Long Tern	n Lor	ng Term	Short Term
_							
Kr-83m	4.0E-05	4.2E-01	3.9E-05	2.7E-01	3.7	'E-04	0.0
Kr-85m	1.4E-02	1.9E+00	1.7E-04	1.2E+00	. 3.9	E-03	1.2E-02
Kr-85	6.1E+01	2.5E+00	2.3E-04	1.6E+00	7.2	E-01	2.3E+02
Kr-87	5.3E-06	1.3E+00	1.1E-04	8.2E-01	7.8	E-04	0.0
Kr-88	4.1E-03	3.8E+00	3.5E-04	2.4E+00	5.0	E-03	0.0
Kr-89	0.0	1.2E-01	1.1E-05	7.7E-02	3.1	E-06	0.0
Xe-131m	7.2E-01	1.3E-01	1.2E-05	8.0E-02	1.3	E-02	8.3E-01
Xe-133m	7.6E-01	8.9E-01	8.1E-05	5.6E-01	2.2	E-02	0.0
Xe-133	8.4E+01	3.6E+01	3.4E-03	2.3E+01	1.9	E-00	8.2E+00
Xe-135m	0.0	3.2E-01	2.9E-05	2.0E-01	4.4	E-05	0.0
Xe-135	2.4E-01	4.5E+00	4.2E-04	2.8E+00	1.9	E-02	0.0
Xe-137	0.0	2.1E-01	2.1E-05	1.3E-01	6.3	E-06	0.0
Xe-138	0.0	1.1E+00	9.7E-05	6.6E-01	1.2	E-04	0.0
Ar-41	2.5E+01	0.0	0.0	0.0	0.0		0.0

⁽¹⁾ Containment can be purged via VV-2 (SLCRS Unfiltered Pathway), CV-2 (SLCRS Filtered Pathway), or PV-1/2 (Gaseous Waste/Process Vent)
 ⁽²⁾ Source Term from BVPS-2 UFSAR Table 11.3.2^(3.1.2.3)
 ⁽³⁾ Source Term from Calculation No. UR(B)-262^(3.1.2.5)

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			ATTACHMEN	ТВ			
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	GASEOU	JS EFFLUENT	MONITOR DE	ETECTION EF	FICIENCIE	S	
			TABLE 2.1-2	2a			
	:		OD DETECTO	D TEFICIENC	Шe		
		BA-1 MONII	OR DETECTO	K EFFICIENC	IES		
			(cpm/uCi/cc)			
			GASEOUS	S WASTE/	Rx CC	ONTAINMENT/	
NUCLIDE	AUXILIARY B	UILDING VENT	PROCES	SS VENT	SLCRS VENT		
	PRIMARY MONITOR ⁽¹⁾	ALTERNATE MONITOR ⁽²⁾	PRIMARY MONITOR ⁽¹⁾	ALTERNATE MONITOR ⁽²⁾	PRIMAR MONITOF	Y ALTERNATE R ⁽¹⁾ MONITOR ⁽²⁾	
	RM-VS-101B	RM-VS-109	RM-GW-108B	RM-GW-109	RM-VS-10	7B RM-VS-110 Channel 5	
~*		Chaliner 5		Chaimer 5		Chamier 5	
Kr-83m							
Kr-85m	9.80.E7	2.39 E7	9.00 E7	2.43 E/ 2.51 E7	5.10 E7	2.57 E7	
NI-85 V = 97	3.88 E3	2.4/E/ 2.05 E7	3.30 E3 6 78 E7	2.31 E7	3.04 E7	2.0/E/ 3.10E7	
NI-0/	1.30 E7	2.93 E7	1.05 E8	2 14 E7	5.16 E7	3.19 E7	
K1-00 Kr-80	1.14 20	2.11 E7 2.03 E7	1.05.68	2.14 27	9.10E7	2.26 E7 3.16 E7	
Kr-90	1.39 L8	2.95 E7 3.05 E7	1.20 E8	2.70 E7 3 10 F7	9.87 F7	3.10 E7	
Xe-131m	2.25 E6	1.56 E7	2.07 E6	1 59 E7	2.94 E7	1.68 F7	
Xe-133m	1 26 E7	1.94 E7	1 16 E7	1.97 E7	4 17 E7	2.09 E7	
Xe-133	1.01 E7	1.24 E7	9.24 E6	1.26 E7	2.28 E7	1.33 E7	
Xe-135m	7.15 E7	5.70 E6	6.58 E7	5.80 E6	1.51 E7	6.15 E6	
Xe-135	1.12 E8	2.91 E7	1.03 E8	2.96 E7	6.42 E7	3.14 E7	
Xe-137	3.16 E7	2.96 E7	2.91 E7	3.01 E7	1.05 E8	3.19 E7	
Xe-138	1.15 E8	2.66 E7	1.06 E8	2.70 E7	7.35 E7	2.87 E7	
Ar-41	7.17 E7	3.00 E7	6.59 E7	3.05 E7	7.19 E7	3.23 E7	

⁽¹⁾ The listed detector efficiencies for the respective primary monitors (Victoreen) are corrected for the reduced pressures observed and documented during operation.

(2) The alternate monitors (Eberline SPING Channel 5) efficiencies are corrected for detector unique installation factors. (Pressure corrections are not required for the SPING Monitors.) See Calculation Package ERS-SFL-85-031 for additional information.^(3.1.1.4)

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	GASEOUS EFF	LUENT MONIT	OR DETECTION	EFFICIENCIE:	5
	01102000211		0.1221201.011		~
		TABL	E 2.1-2b		
	BV-2	MONITOR DET	ECTOR EFFICIE	NCIES	
		(cpm/	uCi/cc)		
		(-1-1-1			
	ST CDS	ST CDC	WASTE CAS		CONDENSCATE
	SLUKS	SLUKS	WASIE GAS	DECON	CONDENSATE
NILICI IDE ⁽¹⁾	DATUWAY		VALL T VENT	BUILDING VEI	
NUCLIDE	2UVS POIDIP	2UVS DO100D	2DMO PO303P	2DMO PO201B	2UVI POLID
	21103-101010	21103-101030	21000-0000	21010-102010	21176-101120
Kr-83m					
Kr-85m	3.20E7	5.83E7	3.20E7	3.20E7	3.20E7
Kr-85	3.60E7	7.19E7	3.60E7	3.60E7	3.60E7
Kr-87	3.73E7	8.85E7	3.73E7	3.73E7	3.73E7
Kr-88	3.05E7	6.80E7	3.05E7	3.05E/	3.05E7
Kr-89	3.72E7	8.73E7	3.72E7	3.72E7	3.72E7
Kr-90	3.86E7	8.80E7	3.80E7	3.86E/	3.86E7
Xe-131m	2.44E7	4.61£4	Z.44E7	2.44E/	2.44E7
Xe-13310	2.00E7	0.00024	2.00E7	2.00E/ 1.00E7	2.00E/ 1.00E7
NC-133 Va 135m	1,00E/ 7,22E6	2.74E/ 1.55E/	1.0UE / 7.22E6	1.00E/ 7.20E6	1.00E/ 7.22E6
Xo 135	1.22EU 3.86E7	1.JJE4 7 A9E7	1.22EU 3.86E7	1.22E0 3.86E7	1.22E0 2.86E7
Xe-137	3 7887	9.0757	3 7877	3 7857	3 7857
Xe-138	3.52F7	7 74F7	3 52F7	3.52F7	3.52F7
A., 41	3 79E7	7 90F7	3 79E7	3 79F7	3 79F7
AT-41			· • • • • • •		1 44 1

Beaver Va	alley Power S	tation	Procedure Number 1/2	Procedure Number: 1/2-ODC-2.02		
Title: ODCM: GASEOUS EFFLU	JENTS	,,,	Unit: I 1/2 Revision: I	evel Of Use: In-Field Reference Page Number:		
	ላ ጥጥ ላ	CUMENT C	2	<u>74 of 128</u>		
	ATTA Pa MODES OF G	ge 1 of 1 ASEOUS RELEA	SE			
MODES OF GAS	Ta EOUS RELEASE FI PLEMENTATION (able 2.2-1 ROM BEAVER V OF 10 CFR 20 AN	ALLEY SITE VE D 10 CFR 50	NTS FOR		
RELEASE POINT	RELEASE MODE 1	RELEASE MODE 2	RELEASE MODE 3	RELEASE MODE 4		
RP 1; VV-1, Auxiliary Building Vent ⁽¹⁾	Aux. Bldg. Ventilation	Containment Purge ⁽³⁾	Same As Mode 1	Same As Mode		
RP 2; CV-1, Rx Containment/SLCRS Vent ⁽¹⁾	Leakage Collection Exhaust	Same As Mode 1	Same As Mode 1 and Containment Purge ⁽³⁾	Same As Mode		
RP 3, PV-1/2, Gaseous Waste/Process Vent ⁽²⁾	Main Cond. Air Ejector, Waste Gas, Containment Vacuum	Same As Mode 1	Same As Mode 1	Same As Mode and Containmer Purge		
RP 4; VV-2 SLCRS Unfiltered Pathway ⁽¹⁾	Contiguous Areas	Containment Purge ⁽³⁾	Same As Mode 1	Same As Mode		
RP 5; CV-2, SLCRS Filtered Pathway Vent ⁽¹⁾	Aux. Bldg. Ventilation	Same As Mode 1	Same As Mode 1 and Containment Purge ⁽³⁾	Same As Mode		
RP 6; CB-2, Condensate Polishing Bldg Vent ⁽¹⁾	(4)	(4)	. (4)	(4)		
RP 7; WV-2, Waste Gas Storage Vault Vent ⁽¹⁾	(4)	(4)	(4)	(4)		
RP 8; DV-2, Decontamination Bldg Vent ⁽¹⁾	(4)	(4)	(4)	(4)		
RP 9; TV-2, Turbine Bldg Vent ⁽¹⁾	(4)	(4)	(4)	(4)		

NOTE: For the purpose of implementing 10 CFR 50, batch discharges may use continuous meteorology since short term meteorology is used at the time of the annual report.

(1) Continuous ground level meteorology is applicable
 (2) Continuous elevated meteorology is applicable
 (2) Continuous elevated meteorology is applicable

⁽³⁾ Mode established by purge from one unit, all other release points remain same as Mode 1
 ⁽⁴⁾ Not normally a radioactive release point

	Beaver Valle	ey Power Stat	tion	Procedure Number 1/2	er: 2-ODC-2.02
Fitle:		······································		Unit: 1 1/2	Level Of Use: In-Field Reference
ODCM: GA	SEOUS EFFLUEN	ITS		Revision: 1 2	Page Number: 75 of 128
	<u> </u>	ATTACH	IMENT D		
		Page	1 of 2	•	
		RADIONU	CLIDE MIX		
		TADE	E 2 2 2 a		
	BV-1 RAL	DIONUCLIDE MIX	FOR GASEOUS	S EFFLUENIS	
		(C	ı/yr)		
	DV				
	CONTAINMENT/	AITXILIARY			
	SLCRS VENT	BUILDING VENT	GASEC	US WASTE/PROC	CESS VENT
-	Long Term, And				
	U	ATTYLIADY	MAIN	CONTAINMEN	г
NUCLIDE ⁽²	CONTAINMENT	RUILDING	CONDENSER/	VACIJIMM	GASEOUS
)	BUILDING ⁽¹⁾	VENTILATION	AIR EJECTOR	PUMPS ⁽³⁾	WASTE SYSTE
	Short Term	Long Term	Long Term	Long Term	Short Term
Kr-83m	2.25-02	4 2F-01	2 7F-01	5 2F-03	0.0
Kr-85m	2.2E-02	4.2E-01 1.9E+00	1.2E+00	5.5E-02	1.2E-02
Kr-85	6.1E+01	2 5E+00	1.2E+00	1.0E+01	2 3E+02
Kr-87	5.4E-02	1.3E+00	8.2E-01	1.1E-02	0.0
Kr-88	2.4E-01	3.8E+00	2.4E+00	7.0E-02	0.0
Kr-89	4.7E-04	1.2E-01	7.7E-02	4.3E-05	0.0
Xe-131m	7.4E-01	1.3E-01	8.0E-02	1.8E-01	8.3E-01
Xe-133m	8.9E-01	8.9E-01	5.6E-01	3.1E-01	0.0
Xe-133	8.9E+01	3.6E+01	2.3E+01	2.7E+01	8.2E+00
Xe-135m	4.5E-03	3.2E-01	2.0E-01	6.2E-04	0.0
Xe-135	7.0E-01	4.5E+00	2.8E+00	2.7E-01	0.0
Xe-137	1.0E-03	2.1E-01	1.3E-01	8.8E-05	0.0
Xe-138	1.5E-02	1.1E+00	6.6E-01	1.7E-03	0.0
I-131	1.2E-03	4.6E-02	2.1E-02	6.6E-03	0.0
I-132	0.0	0.0	0.0	3.5E-05	0.0
I-133	2.0E-04	6.7E-02	3.0E-02	1.2E-03	0.0
I-134	0.0	0.0	0.0	6.6E-06	0.0
I-135	0.0	0.0	0.0	2.0E-04	0.0
Co-58	7.5E-04	6.0E-02	0.0	2.2E-04	0.0
Co-60	3.4E-04	2.7E-02	0.0 .	1.0E-04	0.0
Mn-54	2.2E-04	1.8E-02	0.0	6.9E-05	0.0
Fe-59	7.5E-05	6.0E-03	0.0	2.2E-05	0.0
Sr-89	1.7E-05	1.3E-03	0.0	5.2E-06	0.0
Sr-90	3.0E-06	2.0E-04	0.0	9.2E-07	0.0
Cs-134	2.2E-04	1.8E-02	0.0	6.9E-05	0.0
Cs-137	3.8E-04	3.0E-02	0.0	1.2E-04	0.0
C-14	1.0E+00	0.0	0.0	0.0	7.0E+00
0 14					

⁽¹⁾ Containment can be purged via VV-1 (Auxiliary Building Vent), CV-1 (Rx Containment/SLCRS Vent), or PV-1/2 (Gaseous Waste/Process Vent)
 ⁽²⁾ Source Term from BVPS-2UFSAR Table 11.3-1^(3.1.1.2)
 ⁽³⁾ See Note ⁽³⁾ from ATTACHMENT A Table 2.1-1a ^(3.1.1.5)(3.1.1.8)(3.1.3.10)

	Beaver Va	lley Power	Station	Procedu	ire Number: 1/2-ODC-2	.02
Title:				Unit: 1 /'	Level Of Use	Reference
ODCM: GA	ASEOUS EFFLU	ENTS		Revisio 2	n: Page Number	of 128
		AT	TACHMENT D			
			Page 2 of 2			
		RAD	IONUCLIDE MIX	Κ.		•
		,				
	ΒΥΆΒ		IABLE 2.2-20		ENITS	
•	DV-2 K	ADIONUCLIDI	Cilur)			
			(Cl/yi)			
	SLCRS	SLCRS		·		
	UNFILTERED	FILTERED	TURBINE			
	PATHWAY	PATHWAY	BUILDING VENT	GASEOUS	WASTE/PROCES	<u>S VENT</u>
	Long Term, And					
		AUXILIARY	TURBINE	· MAIN	CONTAINMENT	GASEOUS
NUCLIDE ⁽²	CONTAINMENT	BUILDING	BUILDING	CONDENSER/	VACUUM	WASTE
)	BUILDING ⁽¹⁾	VENTILATION	VENTILATION	AIR EJECTOR	PUMPS ⁽³⁾	SYSTEM
	Short Term	Long Term	Long Term	Long Term	Long Term	Short Term
Kr-83m	4.0E-05	4.2E-01	3.9E-05	2.7E-01	3.7E-04	0.0
Kr-85m	1.4E-02	1.9E+00	1.7E-04	1.2E+00	3.9E-03	1.2E-02
Kr-85	6.1E+01	2.5E+00	2.3E-04	1.6E+00	7.2E-01	2.3E+02
Kr-87	5.3E-06	1.3E+00	1.1E-04	8.2E-01	7.8E-04	0.0
Kr-88	4.1E-03	3.8E+00	3.5E-04	2.4E+00	5.0E-03	0.0
Kr-89	0.0	1.2E-01	1.1E-05	7.7E-02	3.1E-06	0.0
Xe-131m	7.2E-01	1.3E-01	1.2E-05	8.0E-02	1.3E-02	8.3E-01
Xe-133m	7.6E-01	8.9E-01	8.1E-05	5.6E-01	2.2E-02	0.0
Xe-133	8.4E+01	3.6E+01	3.4E-03	2.3E+01	1.9E-00	8.2E+00
Xe-135m	0.0	3.2E-01	2.9E-05	2.0E-01	4.4E-05	0.0
Xe-135	2.48-01	4.5E+00	4.2E-04	2.8E+00	1.9E-02	0.0
Xe-137	. 0.0	2.1E-01	2.1E-05 0.7E-05	1.5E-01	0.3E-00	0.0
I_131	0.0 2.7E-05	1.1E+00 4.6E.03	9.7E-05	2.1E-02	1.20~04 4.7E-04	0.0
I-131 I-132	0.0	4.00-03	0.01-04	0.0	7.70-04 2.5E-06	0.0
I-132 I-133	2.0 2.6E-06	6.7F-03	8.7F_04	3.0F_02	2.5E-00 8.4E-05	0.0
I-135 I-134	0.0	0.71-05	0.0	0.0	4 7E-03	0.0
I-135	· 0.0	0.0	0.0	0.0	1.4E-05	0.0
Co-58	7.5E-02	6 0E-04	0.0	0.0	1.6E-05	0.0
Co-60	3.4E-02	2.7E-04	0.0	0.0	7.4E-06	0.0
Mn-54	2.2E-02	1.8E-04	0.0	0.0	4.9E-06	0.0
Fe-59	7.5E-03	6.0E-05	0.0	0.0	1.6E-06	0.0
Sr-89	1.7E-03	1.3E-05	0.0	0.0	3.7E-07	0.0
Sr-90	3.0E-04	2.0E-06	0.0	0.0	6.6E-08	0.0
Cs-134	2.2E-02	1.8E-04	0.0	0.0	4.9E-06	0.0
Cs-137	3.8E-02	3.0E-04	0.0	0.0	8.4E-06	0.0
C-14	1.0E+00	0.0	0.0	0.0	0.0	7.0E+00
A = 11	2.5E+01	0.0	0.0	0.0	0.0	0.0

\$

⁽¹⁾ Containment can be purged via VV-2 (SLCRS Unfiltered Pathway), CV-2 (SLCRS Filtered Pathway), or PV-1/2 (Gaseous Waste/Process Vent)
 ⁽²⁾ Source Term from BVPS-2UFSAR Table 11.3-2^(3.1.1.3)
 ⁽³⁾ See Section 8.1.1.1

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el Of Use: In-Field Reference

	DIS	TANCE	ES OF LI	IMITING M	IAXIMI FOR A	TABLE JM INDI NNUAL (met	E 2.2-3 VIDUAL X/Q VAJ ers)	RECEPTO LUES	RS TO R	ELEASE P	OINTS				ODCM: G	Title:	
DOWNWIND	SITE	BOUN	DARY*	VEGET. GARE	ABLE DEN	MILK	COW	MILK (GOAT	MEAT A	NIMAL	RESID	ENT		ASEOU		Bea
SECTOR	GRC	DUND	ELEV	GROUND	ELEV	GROUN	D ELEV	GROUND	ELEV	GROUND) ELEV	GROUND	ELEV		SE		ve
	(1)	(2)													FFI		r <
N NNE	670 535	579 792	413	2,623 2 740	2,423			4,651	4,418	4,152	3,919	2,527	2,295		UEN		alle
NE	490	442	327	724	901	7,741	7,526	20,760	20,545	2,040 7,741	7,526	708	790	DI	TS		Y.
ENE	490	448	394	1,674	1,658			6,824	6,671		*	708	1,562	STA			Po
Е	545	546	551	1,979	1,922	7.065	6,998	4.265	4.200	4.265	4.200	756	1.922	NCI A			we
ESE	575	607	672	1,577	1,619			2,865	2,899	1,577	1,619	1,577	1,650	ES]			H.
SE	575	701	815	1,835	1,961	5,729	5,848	5,729	5,848	3,299	3,420	1,835	1,961	Pag T(- [, A
SSE	655	762	912	1,738	1,933	5,053	5,244	9,977	10,166	1,770	1,964	1,432	1,628	CHIN Generation CHIN			atio
S	850	887	1.054	3,138	3,372	3.347	3,539			2.253	2,487	2,189	2,423	Of 1			nc
SSW	975	1,064	1,226	2,317	2,560	3,347	3,590	5,616	5.859	2.317	2.560	1.223	1.466	AS			
SW	1,435	1,439	1,574	2,221	2,439			2,993	3,210	2,414	2,632	2.221	2,439			[
WSW	595	561	660	2,301	2,463	5,182	5,341			2,446	2,608	2,301	2,463	noc			
W	685	640	681	3,556	3,635	5,118	5,195			4,088	4,166	3,556	3,635	VTS			
WNW	810	701	6 7 6	3,605	3,590	4,538	4,521	22,529	22,507	3,605	3,590	3,605	3,590		₽	c	E
NW	655	567	482	1,464	1,415			10,944	10,832	4,570	4,461	1,432	1,383		evis	_ <u>F</u>	roce
NNW	645	558	420	1,464	1,285			15,450	15,262	3,959	3,774	1,143	1,253		ion: 2	3	dure 1

*Distances for ground releases are measured from the center point between the BV-1 and BV-2 Containment Buildings. Distances for elevated release are measured from the BV-1 Cooling Tower. Elevated release is applicable to PV-1/2. Ground release is applicable to all other release points.

(1) TV-2 and CB-2 (2) VV-1, CV-1, VV-2, CV-2, DV-2, WV-2

ODCM: Title **TABLE 2.2-4** CV-1 AND CV-2 ANNUAL AVERAGE, GROUND LEVEL, X/O VALUES FOR CONTINUOUS RELEASES, SPECIAL DISTANCES (IDENTIFIED IN ATTACHMENT E. TABLE 2.2-3), AND SELECTED CONTROL LOCATIONS GASEOUS EFFLUENTS $(1E-7 \text{ sec/m}^3)$ Beaver INDIVIDUAL RECEPTORS DISTANCES TO THE CONTROL LOCATION, IN MILES SITE VEGE-< TABLE MILK MILK MEAT BOUND RESI-0-0.5-1.0-1.5-2.0-2.5-3.0-3.5-4.0-4.5-'alley -ARY GARDEN COW GOAT ANIMAL DENCE 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 0-5 125.0 12.80 13.50 233.0 39.5 18.70 11.80 7.68 5.82 4.240 3 4 8 0 2.660 2.280 --5.360 6.27 MILE DISPERSION PARAMETERS 50.2 6.92 2.040 7.16 4.60 1.560 --6.42 148.0 26.8 10.80 6.62 3.44 2.690 2.190 1.830 Power 102.0 47.40 49.10 6.99 4.81 2.370 1.230 1.200 0.265 1.20 120.0 21.6 11.60 3.55 1.910 1.450 85.8 12.50 0.124 42.20 103.0 9.55 5.70 1.880 1.060 ----18.4 4.14 3.04 2.340 1.260 ATTACHMENT Page S 54.5 6.16 0.807 1.910 1.91 32.60 89.5 15.7 6.08 3.65 2.49 1.83 1.300 1.040 0.859 0.726 Station 31.1 6.92 3.010 6.92 6.92 59.1 10.5 5.16 3.10 1.95 1.43 1.020 0.815 0.612 0.517 --27.8 0.768 1 of 6.70 0.994 0.994 2.74 6.70 65.9 12.0 5.89 3.54 2.41 1.77 1.160 0.931 0.649 24.1 6.68 1.030 0.372 6.50 9.01 67.2 12.0 5.46 3.30 1.91 1.41 0.997 0.803 0.665 0.563 H 27.5 3.40 3.090 --5.57 5.81 99.9 17.5 6.77 4.11 2.84 2.101.490 1.200 0.999 0.848 23.8 3.700 6.31 1.740 6.31 19.30 110.0 19.9 7.83 4.80 3.33 1.580 1.190 1.020 2.48 1.940 22.3 13.90 9.050 29.2 9.94 --12.30 13.90 160.0 16.10 5.85 4.37 3.430 2.790 2.1101.800 163.0 19.30 5.720 ---17.70 19.30 283.0 49.8 23.50 14.60 10.30 7.72 5.690 4.650 3.620 3.090 Revision 2 278.0 15.70 9.540 --13.00 15.70 615.0 103.0 49.00 31.00 15.40 11.70 9.320 7.660 6.460 5.550 2 487.0 40.70 30,100 1,810 40.70 40.70 59.20 1290.0 203.0 92.10 40.60 31.20 25.000 20.700 14.200 12.200 924.0 194.00 8.660 40.50 200.00 1710.0 262.0 123.00 79.80 55.00 42.30 34,000 28,200 19.400 16.700 ---302.0 63.00 1.720 15.40 92.30 547.0 86.4 40.80 26.20 17.60 13.50 10.100 8.350 6.560 5.660 ____ 3 Page ODC-2 In-Field Reference 2 78 of 128 22

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VV-1 AN X/Q VALUES F (IDENTIFIED IN ATTACH INDIVIDUAL RECEPT	TABLE 2.2-5 VV-1 AND VV-2 ANNUAL AVERAGE, GROUND LEVEL, X/Q VALUES FOR CONTINUOUS RELEASES, SPECIAL DISTANCES (IDENTIFIED IN ATTACHMENT E, TABLE 2.2-3), AND SELECTED CONTROL LOCATIONS (IE-7 sec/m ³) INDIVIDUAL RECEPTORS DISTANCES TO THE CONTROL LOCATION, IN MILES ITE VEGE- UND TABLE MUK MEAT RESL 0;												ES		ODCM: GASEOUS E	Title:	Beave			
SITE BOUND -ARY	(VEGE- TABLE GARDEN	MILK COW	MILK GOAT	MEAT ANIMAL	RESI- DENCE	0- 0.5	0.5- 1.0	1.0- 1.5	1.5- 2.0	2.0- 2.5	2.5- 3.0	3.0- 3.5	3.5- 4.0	4.0- 4.5	4.5- 5.0	0	FFLUEN		r Valle
152 62 132 11	2.0 2.3 2.0 0.0	15.00 7.66 57.90 13.60	 1.240 	5.980 2.150 0.269 1.270	7.06 7.08 1.24 	15.90 7.95 60.20 50.40	276.0 189.0 156.0 135.0	. 49.9 32.0 24.8 20.6	22.70 12.20 12.70 10.20	13.70 7.31 7.51 6.01	8.75 4.99 5.09 4.31	6.52 3.69 3.73 3.14	4.69 2.87 2.47 2.41	3.810 2.320 1.980 1.930	2.900 1.920 1.500 1.290	2.470 1.630 1.270 1.080	A' -5 MILE DI	SLA		ey Powe
	67.8 38.0 33.3 29.1	6.66 7.64 7.27 7.41	0.828 1.030 1.080	1.990 3.200 1.030 0.382	1.99 7.64 2.88 7.19	38.80 7.64 7.27 10.10	116.0 76.7 86.2 87.0	17.7 11.9 13.5 13.7	6.57 5.59 6.37 5.98	3.86 3.29 3.75 3.53	2.61 2.05 2.53 2.02	1.90 1.49 1.84 1.48	1.34 1.05 1.20 1.04	1.070 0.842 0.960 0.833	0.883 0.630 0.790 0.688	0.774 0.531 0.666 0.531	TTACHMEN Page 2 of 7 SPERSION P.			r Station
	32.8 28.7 26.2 201.0	-3.65 7.08 15.70 22.40	3.300 4.040 6.230	 1.850 9.980 	6.10 7.08 13.80 20.40	6.38 22.90 15.70 22.40	127.0 140.0 204.0 347.0	20.3 23.6 34.8 61.3	7.56 8.87 18.40 27.70	4.48 5.28 11.40 16.60	3.04 3.60 6.38 11.40	2.23 2.66 4.71 8.49	1.57 2.07 3.66 6.19	1.260 1.670 2.960 5.020	1.050 1.260 2.230 3.880	0.885 1.070 1.900 3.300	T F ARAMETER			
	345.0 598.0 1030.0 345.0	18.00 48.60 262.00 83.40	10.600 35.000 	 1.920 9.520 1.840	14.70 48.60 47.80 18.10	18.00 48.60 271.00 121.00	715.0 1410.0 1820.0 601.0	132.0 269.0 350.0 114.0	60.30 120.00 164.00 52.80	36.50 73.00 100.00 32.20	17.70 48.50 66.60 21.00	13.20 36.40 50.10 15.80	10.40 28.70 39.50 11.60	8.440 23.400 32.300 9.460	7.060 15.900 21.900 7.360	6.040 13.600 18.800 6.310	S	Revision: 2	Unit: 1/2	Procedure Numb
																		Page Number: 79 of 128	Level Of Use: In-Field Reference	er 2-ODC-2.02

ODCM: Title **TABLE 2.2-6** PV-1/2 ANNUAL AVERAGE, ELEVATED LEVEL, X/Q VALUES FOR CONTINUOUS RELEASES, SPECIAL DISTANCES (IDENTIFIED IN ATTACHMENT E, TABLE 2.2-3), AND SELECTED CONTROL LOCATIONS GASEOUS EFFLUENTS $(1E-7 \text{ sec/m}^3)$ Beaver INDIVIDUAL RECEPTORS DISTANCES TO THE CONTROL LOCATION, IN MILES DOWN-SITE VEGE-Valley BOUND TABLE RESI-0-0.5-1.5-2.0-3.0-3.5-4.0-4.5-WIND 1.0-2.5-MILK MILK MEAT GOAT ANIMAL DENCE 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 SECTOR -ARY GARDEN COW 0-5 0.0289 23.1000 8.2700 5.32 2.56 1.91 1.480 1.200 0.996 0.846 Ν 0.0082 6.720 1.910 2.27 6.790 --MILE Power 1.290 0.0175 3.27 2.69 1.430 1.100 NNE 0.0280 6.690 --1.430 6.14 6.890 14.5000 6.9800 5.47 1.770 2.090 7.10 5.38 3.68 2.880 1.880 1.570 NE 0.0110 .074 1.610 0.350 1.61 0.055 0.0069 0.1160 .2300 3.22 2.620 2.030 1.710 ENE 0.0110 9.090 1.770 0.525 0.0135 0.3310 7.2800 6.02 4.75 1.100 ----DISPERSION PARAMETERS ATTACHMENT Page 3 of S 1.280 Е 0.0360 8.300 1.240 2.870 2.87 8.300 0.0124 17.1000 7.8600 6.20 3.67 2.83 2.190 1.730 1.200 tation ESE 0.0420 11.600 4.570 11.60 11.200 0.0208 12.7000 8.1400 4.78 3.00 2.20 1.360 1.160 0.830 0.737 4.45 2.79 2.05 1.180 0.811 0.686 SE 0.0750 7.890 1.230 1.230 3.05 7.890 0.4770 7,4000 7.5700 1.460 SSE 0.3030 2.58 1.89 0.937 0.646 0.2060 7.390 1.160 0.357 7.20 9.770 9,4400 6,9300 4.06 1.170 0.546 ч S 5.740 3.490 --6.06 0.7960 8.4900 4.98 1.380 0.774 0.655 3.760 6.310 8.5100 3.37 2.47 1.110 SSW 7.640 3.610 2 140 0.872 5.820 26.1000 9.1000 4.0300 3.11 2.11 1.56 1.030 0.834 0.807 0.684 3.61 1.060 - 1.150 SW 6.500 3.900 --2.560 3.47 3.900 36.1000 15.9000 4.9300 3.12 1.77 1.57 1.201 0.977 2.36 1.210 0.920 4.350 3.98 17.8000 4.9000 3.53 1.64 1.460 0.781 WSW 0.126 1.420 ---4.350 0.3870 Revision 2 Unit: W 0.029 2.490 0.764 2.02 2.490 0.0147 6.2300 3.68 2.50 1.84 0.741 1.120 0.851 0.795 --8.7200 5 0.0202 2.50 0.686 0.791 0.731 WNW 0.033 2.530 1.7800.163 2.53 2.530 0.0549 0.0809 3.07 1.84 1.110 NW 0.007 0.074 0.305 1.67 0.073 0.0084 0.0650 0.1170 3.66 2.30 1.69 1.210 0.903 0.804 0.683 --0.008 0.224 0.0135 6.7800 5.0200 2.96 1.93 0.849 0.705 NNW 6.460 1.81 6.590 1.49 1.050 0.599 ---3 Page Number ODC-2 In-Field Reference 80 of 128

*Elevated release X/Q value at site boundary location where ground level release X/Qs maximize.

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	- <u></u>	(IDENT	IFIED I	TV-2 / FOI N ATT/	ANNUAL R CONTIN ACHMEN	AVERA NUOUS I T E, TAI	TABLE 2 GE, GRO RELEASI BLE 2.2-3 (1E-7 sec	2.2-7 DUND LI ES, SPE(3), AND c/m ³)	EVEL, X CIAL DI SELEC	(/Q VA STANC TED CC	LUES CES ONTRO	L LOCA	ATIONS	3				ODCM: GASE	Title:	B
		IND	IVIDUA	AL REC	EPTORS			DI	STANC	ES TO '	THE CO	ONTRO	LLOCA	ATION,	IN MIL	ES		SDC		eav
DOWN- WIND SECTOR	SITE BOUND -ARY	VEGE- TABLE GARDEN	MILK COW	MILK GOAT	MEAT ANIMAL	RESI- DENCE	0- 0.5	0.5- 1.0	1.0-	1.5- 2.0	2.0- 2.5	2.5- 3.0	3.0- 3.5	3.5- 4.0	4.0-	4.5- 5.0	0	EFFLUEN		er Valle
N NNE NE ENE	105.0 102.0 96.6 84.1	14.00 7.37 51.90 13.20	 1.230 	5.740 2.130 0.268 1.280	6.74 6.83 1.23	14.80 7.64 53.80 46.30	244.0 161.0 132.0 115.0	42.6 28.8 23.0 19.4	20.50 11.40 12.10 9.89	12.70 6.94 7.24 5.85	8.18 4.79 4.95 4.23	6.15 3.56 3.64 3.09	4.45 2.78 2.42 2.38	3.640 2.250 1.950 1.900	2.770 1.870 1.480 1.270	2.380 1.590 1.250 1.070	A-5 MILE D	TS		y Powe
E ESE SE SSE	60.7 37.1 41.8 34.0	6.49 7.25 7.06 7.16	.829 1.020 1.070	1.980 3.100 1.020 0.384	1.98 7.25 2.85 6.96	35.70 7.25 7.06 9.69	99.2 65.8 73.5 74.2	16.6 11.1 12.6 12.7	6.32 5.36 6.12 5.71	3.75 3.19 3.64 3.41	2.55 2.00 2.47 1.97	1.87 1.46 1.81 1.45	1.32 1.03 1.18 1.02	1.060 0.829 0.945 0.818	0.871 0.621 0.779 0.676	0.735 0.524 0.658 0.572	TTACHMEN Page 4 of 7 ISPERSION P			r Station
S SSW SW WSW	32.7 29.7 24.1 159.0	3.64 6.73 14.80 20.80	3.310 3.890 	 1.800 9.550 	6.00 6.73 13.10 19.10	6.27 20.90 14.80 20.80	109.0 120.0 174.0 301.0	18.6 21.3 31.2 53.6	7.13 8.31 17.20 25.30	4.29 5.03 10.40 15.60	2.94 3.46 6.10 10.80	2.17 2.57 4.54 8.09	1.53 2.00 3.54 5.93	1.230 1.620 2.870 4.830	1.020 1.230 2.170 3.750	0.866 1.040 1.850 3.200	T F ARAMETER			
W WNW NW	264.0 404.0 735.0	16.90 44.50 216.00	10.100 32.500	 1.870 9.100	13.90 44.50 43.90	16.90 44.50 222.00	636.0 1310.0 1720.0	111.0 218.0 279.0	53.90 104.00 140.00	33.50 65.40 88.80	16.50 44.20 60.30	12.40 33.60 45.90	9.82 26.70 36.60	8.040 22.000 30.100	6.760 15.000 20.600	5.790 12.900 17.700	ŝ	Revision: 2	Unit: 1/2	Procedure Nur
NNW	247.0	71.00		1.820	17.00	99.40	557.0	924.0	45.90	28.90	19.20	14.60	10.80	8.880	6.950	5.980		Page Number: 81 of 128	Level Of Use: In-Field Reference	mber: /2-ODC-2.02

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Beaver Valley Power Station	Procedure N	umber: 1/2-ODC-2.02
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ODCM: GASEOUS EFFLUENTS	Revision: 2	Page Number: 82 of 128
ATTACHMENT F		
Page 5 of 7		
0-5 MILE DISPERSION PARAMET	ERS	
TABLE 2.2-8		
DV-2 ANNUAL AVERAGE, GROUND LEVE	L, X/Q VALI	JES
FOR CONTINUOUS RELEASES, SPECIAL	DISTANCE	S
(IDENTIFIED IN ATTACHMENT E, TABLE 2.2-3), AND SELI	ECTED CON	TROL LOCATIONS
$(1E-7 \text{ sec/m}^3)$		
Sama as Table 2.2.4		

Beaver Valley Power Station	Procedure Ni	$\frac{1}{2} ODC 2.02$
Title:	Unit:	Level Of Use:
ODCM: GASEOUS EFFLUENTS	1/2 Revision:	In-Field Reference Page Number:
ATTACHMENT F	2	<u>83 OF 128</u>
Page 6 of 7		
0-5 MILE DISPERSION PARAM	METERS	
TABLE 2.2-9		
WV-2 ANNUAL AVERAGE, GROUND LE FOR CONTINUOUS RELEASES, SPEC (IDENTIFIED IN ATTACHMENT E, TABLE 2.2-3), AND S (1E-7 sec/m ³)	EVEL, X/Q VALU IAL DISTANCES ELECTED CON	JES S TROL LOCATIONS
Same as Table 2.2-4		·
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Beaver Valley Power Station	Procedure Nu	$\frac{1}{2} \frac{1}{2} \frac{1}$
Title:	Unit:	Level Of Use:
ODCM: GASEOUS EFFLUENTS	1/2 Revision: 2	In-Field Referen Page Number: 84 of 128
ATTACHMENT F Page 7 of 7 0-5 MILE DISPERSION PARAM	ETERS	1 04 01 120
TABLE 2.2-10		
CB-2 ANNUAL AVERAGE, GROUND LEV FOR CONTINUOUS RELEASES, SPECIA (IDENTIFIED IN ATTACHMENT E, TABLE 2.2-3), AND SE	/EL, X/Q VALU AL DISTANCES ELECTED CON	ÆS 5 TROL LOCATIO
Same as Table 2.2-7		
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Bea	ver Valley Powe	er Station	Procedure Nun 1	nber: /2 -0DC- 2.02
Title:			Unit:	Level Of Use:
	•		1/2	In-Field Reference
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<u> </u>	······································	ATTACHMENT G	, , , , , , , , , , , , , , , , , , ,	00 01 120
		Page 1 of 2		
	NOBLE GAS DOSE I	FACTORS AND D	OSE PARAMETERS	5
		TABLE 2:2-11		
	DOSE FACTORS FO	R NOBLE GASES	S AND DAUGHTER	S
	K _i	L_i	$\mathbf{M}_{\mathbf{i}}$	N_i
	TOTAL BODY	SKIN DOSE	GAMMA AIR	BETA AIR DOS
NUCLIDE ⁽¹⁾	DOSE FACTOR	FACTOR	DOSE FACTOR	FACTOR
	mrem/yr	mrem/yr	mrad/yr	mrad/yr
	Per	Per	Per	Per
	uCi/m ³	uCi/m ³	uCi/m ³	uCi/m ³
Kr-83m	7.56E-02		1.93E+01	2.88E+02
Kr-85m	1.17E+03	1.46E+03	1.23E+03	1.97E+03
Kr-85	1.61E+01	1.34E+03	1.72E+01	1.95E+03
Kr-87	5.92E+03	9.73E+03	6.17E+03	1.03E+04
Kr-88	1.47E+04	2.37E+03	1.52E+04	2.93E+03
Kr-89	1.66E+04	1.01E+04	1.73E+04	1.06E+04
Kr-90	1.56E+04	7.29E+03	1.63E+04	7.83E+03
Xe-131m	9.15E+01	4.76E+02	1.56E+02	1.11E+03
Xe-133m	2.51E+02	9.94E+02	3.27E+02	1.48E+03
Xe-133	2.94E+02	3.06E+02	3.53E+02	1.05E+03
Xe-135m	3.12E+03	7.11E+02	3.36E+03	7.39E+02
Xe-135	1.81E+03	1.86E+03	1.92E+03	2.46E+03
Xe-137	1.42E+03	1.22E+04	1.51E+03	1.27E+04
Xe-138	8.83E+03	4.13E+03	9.21E+03	4.75E+03
Ar-41	8.84E+03	2.69E+03	9.30E+03	3.28E+03

(1) The listed dose factors are for radionuclides that may be detected in gaseous effluents.

D		<u> </u>	Procedure Nun	ber:
Bea	ver valley Pow	ver Station	. 1	/2-ODC-2.02
Title:			Unit:	Level Of Use:
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ODCM: GASEOU	S EFFLUENTS		2	86 of 128
······································	. 	ATTACHMENT G		
		Page 2 of 2		
	NOBLE GAS DOSE	FACTORS AND DO	OSE PARAMETERS	5
		TABLE 2.2-12		
	DOSE PARAMETE	ERS FOR FINITE EL	EVATED PLUMES	5
	$V_i^{(1)}$	B _i ^{(1), (2)}	$M_i^{(3)}$	$\mathbf{B_{i}}^{(3)}$
	TOTAL BODY	GAMMA AIR	TOTAL BODY	GAMMA AIR
NUCLIDE ⁽⁴⁾	DOSE FACTOR	DOSE FACTOR	DOSE FACTOR	DOSE FACTOR
	mrem/yr	mrad/yr	mrem/yr	mrad/yr
	Per	Per	Per	Per
	uCi/sec	uCi/sec	uCi/sec	uCi/sec
Kr-83m	3.19E-10	1.75E-8	4.58E-8	3.96E-5
Kr-85m	7.81E-5	1.16E-4	4.70E-4	7.06E-4
Kr-85	1.55E-6	2.35E-6	5.54E-6	8.40E-6
Kr-87	5.13E-4	7.74E-4	1.45E-3	2.19E-3
Kr-88	1.39E-3	2.09E-3	4.09E-3	6.16E-3
Kr-89	7.99E-4	1.20E-3	1.25E-3	1.88E-3
Xe-131m	1.64E-5	2.47E-5	1.67E-4	3.09E-4
Xe-133m	1.38E-5	2.11E-5	1.32E-4	2.61E-4
Xe-133	1.05E-5	1.56E-4	1.54E-4	2.76E-4
Xe-135m	2.41E-4	3.66E-4	6.21E-4	9.50E-4
Xe-135	1.41E-4	2.12E-4	6.96E-4	1.05E-3
Xe-137	6.00E-5	9.05E-5	9.66E-5	1.46E-4
Xe-138	8.11E-4	1.22E-3	2.22E-3	3.34E-3
Ar-41	1.02E-3	1.53E-3	2.68E-3	4.02E-3

 V_i and B_i values used to implement Modes 1, 2, and 3 of Section 2.2.1 (10CFR20)

⁽²⁾ B_i values used to implement Modes 1, 2, 3, and 4 of Section 2.3.1 (10CFR50)

⁽³⁾ V_i and B_i values to implement Mode 4 of Section 2.2.1 (10CFR20) and to implement monitor setpoint determinations of Section 2.1.2 and 2.1.4

⁽⁴⁾ The listed dose parameters are for radionuclides that may be detected in gaseous effluents.

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				18010 2.2-	1.0				
		P VALU	RS FOR A CH	ILD FOR THE	BRAVER VAL	LEY SITE			
		iT	·	/	(on mater)				
			(Bren,	yr per uul,	(cu meter)				
	Nuclide	Bone	Liver	T. Body	Thyroid	Kidney	Lung	GI-LLI	
		A 408.44	1 100.00	4 408-69	1 102.03	1 108.43	1 198.45	1 198403	
	1 H-3 2 P-32	0.008+00 2 608+08	1.128+03	1 128+03 9 888+04	1.128+03 0.008+00	0.00 K+00	0.008+00	4.228+04	
	3 Cr-51	0.00B+00	0.008+00	1.54 E +02	8.55 R+01	2.438+01	1.708+04	1.081+03	
	4 Hn-54	0.00E+00	4.298+04	9.51 E+ 03	0.00B+00	1.00 E+04	1.58 E+06	2.29B+04	
	5 Fe-59	2.07 E+ 04	3.34 E +04	1.67 E+ 04	0.008+00	0.008+00	1.278+06	7.07B+04	x
	8 Co-57	0.008+00	9 03R+02	1 07R+03	0.00E+00	0.008+00	5.078+05	1.328+04	
	7 Co-58	0.008+00	1.778+03	3.18 8+0 3	0.002+00	0.001+00	1.118+06	3.448+04	
	8 Co-60	0.008+00	1.318+04	2.26 E+04	0.00 E +00	0.00 X+ 00	7.078+06	8.621+04	
	9 Zn-65	4.258+04	1.138+05	7.03 E+04	0.00E+00	7.148+04	9.958+05	1.638+04	
	10 Rb-86	0.008+00	1.988+05	1.148+05	0.008+00	0.008400	0.008+00	7.998+03	
	11 Sr-89	5.99 8 +05	0.008+00	1.728+04	0.00E+00	0.008+00	2.168+06	1.678+05	
	12 Sr-90	1.018+08	0.00B+00	6.448+06	0.00E+00	0.00 E+00	1.488+07	3.438+05	
	13 Y-91	9.148+05	0.00B+00	2.44K+04	0.00K+00	0.001+00	2.63E+06	1.848+05	
	14 Zr-95 15 Wb-95	1.908+05 2 358+04	4.185+04 9.182+03	3.708+04 6.558+03	0.008+00	5.968+04 8.628+03	2.238+00 6.148+05	3.70E+04	
	10 00 00	0.000101	0.100100	0.000100	01004-04				
	18 Nb-97	4.29E-01	7.70K-02	3.601-02	0.008+00	8.558-02	3.428+03	2.78E+04	
	17 Ho-99	0.008+00	1.728+02	4.268+01	0.00X+00	3.928+02 5.078-02	1.058+05 9.512±02	1.2/8+05	
	10 10-99# 19 2n-103	1.705-03	0.00R+00	1.078+03	0.008+00	7.038+03	6.62E+05	4.488+04	
	20 Ru-108	1.368+05	0.00E+00	1.59B+04	0.008+00	1.848+05	1.43E+07	4.298+05	
	NT 1 - 110	1 007-04	1 100.00	0 148-00	0 008-00	2 128±04	6 48810¢	1 በበም±ሰፍ	
	41 Ag-110m 27 Ch.124	1.595+04	1.148+04 7 108±07	9_14&+U3 2_00₽+04	0.008+00 1 268+07	0.00R+00	3.24R+08	1.648+05	
	23 Sb-125	9.848+04	7.598+02	2.078+04	9.10E+01	0.00E+00	2.328+06	4.03E+04	
	24 Te-127m	2.49B+04	8.55E+03	3.028+03	8.07 8 +03	6.38 B+04	1.488+08	7.148+04	
	25 Te-129m	1.928+04	6.85 E +03	3.048+03	8.33E+03	5.038+04	1.76 E+0 6	1.828+05	
	26 1-131	4,818+04	4.818+04	2.738+04	1.628+07	7.881+04	0.00E+00	2.84E+03	
	27 I-133	1.661+04	2.038+04	7.708+03	3.85 8+ 06	3.388+04	0.00E+00	5.48 8+0 3	
	28 Cs-134	6.518+05	1.018+06	2.25E+05	0.00 8 +00	3.308+05	1.21E+05	3.85E+03	
	29 Cs-136	6.518+04	1.718+05	1.158+05	0.00E+00	9.558+04 2.927+0F	1.458+04 1 048±05	4.105+03 3.627+03	
	JU 68-137	9.018+05	0.498+05	1.208403	0.008100	2.048103	1.048103	9.022103	
	31 Ba-140	7.40E+04	6.48 8 +01	4.33B+03	0.00 6+00	2.118+01	1.748+08	1.028+05	
	32 La-140	6.448+02	2.25E+02	7.558+01	0.00B+00	0.008+00	1.83B+05	2.26B+05	
	33 Ce-141	3.928+04	1.95 8+04	Z.908+03	U.UUK+00	0.008403	J. 446+0)	3.00E+V4	
	34 6-144	6 778+06	2 12BYUG	3 618106	0 008+00	1 178+06	1 201407	3.898405	
	34 Ce-144	6.77 E +06	2.128+06	3.618+05	0.008+00	1.178+06	1.208+07	3.898402	
	EOUSI	EOUS EFFLUENT Nuclide 1 H-3 2 P-32 3 Cr-51 4 Mn-54 5 Fe-59 6 Co-57 7 Co-58 8 Co-60 9 Zn-65 10 Rb-86 11 Sr-89 12 Sr-90 13 Y-91 14 Zr-95 15 Rb-95 16 Rb-97 17 Mo-99 18 Tc-99n 19 Ru-103 20 Ru-106 21 Ag-110n 22 Sb-124 23 Sb-125 24 Te-129n 25 Te-129n 26 I-131 27 I-133 28 Ce-134 29 Ce-136 30 Ce-137 31 Ba-140	EOUS EFFLUENTS ORC i P VALU iT P VALU iT P VALU iT P VALU iT P VALU iT P VALU iT P VALU iT P VALU iT P VALU P VALU	EOUS EFFLUENTS ATT H ORGAN DO I I I I I I I I I I I I I	EOUS EFFLUENTS ATTACHN Page 1 ORGAN DOSE P. 1 Table 2.2- P VALUES FOR A CHILD FOR THE IT (arce/yr per uCl, Nuclide Bone Liver T. Body 1 B-3 0.008+00 1.128+03 1.128+03 2 P-32 2.608+06 1.148+05 9.888+04 3 Cr-51 0.008+00 1.008+00 1.588+04 3 Cr-51 0.008+00 1.008+00 1.588+04 4 B-54 0.008+00 1.008+00 1.588+03 5 Fe-59 2.078+04 1.338+04 1.678+04 8 Co-57 0.008+00 1.988+05 1.148+05 8 Co-57 0.008+00 1.988+05 1.148+05 9 Co-58 0.008+00 1.988+05 1.148+05 8 Co-50 0.008+00 1.988+05 1.148+05 10 Rb-86 0.008+00 1.988+05 1.148+05 11 Sr-39 5.988+04 1.338+04 1.278+04 12 Sr-90 1.018+06 0.008+00 1.728+04 13 T-91 9.148+05 0.008+00 1.728+04 13 T-91 9.148+05 0.008+00 1.728+04 14 Sr-35 1.989+05 1.148+05 1.148+05 11 Sr-39 5.938+05 1.088+03 6.555+03 16 Bb-97 4.298+01 7.708-02 3.601-02 17 Bo-39 0.008+00 1.728+02 4.268+04 13 T-91 9.148+05 0.008+00 1.728+04 14 T-23 1.989+05 1.148+05 1.148+05 15 Rb-95 2.358+04 9.188+03 6.555+03 16 Bb-97 4.298+01 1.728+04 1.938+03 0.078+00 17 Bo-39 0.008+00 1.728+02 2.078+04 27 F-127 2.449+04 5.558+03 3.024+05 27 F-129 1.982+04 5.558+03 3.024+05 27 F-129 1.982+04 5.558+03 3.024+05 27 F-129 1.982+04 5.558+03 3.024+05 27 F-129 1.922+04 5.558+03 3.024+05 28 F-131 4.818+04 1.138+04 2.738+04 27 F-133 1.582+04 1.738+04 2.738+04 27 F-133 1.582+04 1.738+04 2.738+04 27 F-133 1.582+04 1.738+04 2.738+04 27 F-133 1.582+04 1.738+05 1.1384+05 28 F-134 5.538+04 1.738+04 2.738+05 28 F-135 5.538+04 1.738+04 2.738+05 28 F-136 5.538+04 1.738+05 1.288+05 28 F-136 5.538+04 1.738+05 1.288+05 28 F-136 5.538+04 1.738+05 1.288+05 29 F-136 5.538+04 1.738+04 1.738+05 20 F-136 5.538+04 1.738+05 1.288+05 20 F-136 5.538+04 1.738+05 1.288+05 20 F-137 5.078+04 1.738	EOUS EFFLUENTS ATTACHMENT H Page 1 of 1 ORGAN DOSE PARAM I I I I I I I I I I I I I	EOUS EFFLUENTS ATTACHMENT H Page 1 of 1 ORGAN DOSE PARAMETER: ratio and a second s	EOUS EFFLUENTS R ATTACHMENT H Page 1 of 1 ORGAN DOSE PARAMETERS 1 Table 2.2-13 P values for A CHLD for THE BRAVER Valuer SITE 1 rans/yr per uCi/cu meter) Reclide Rose Liver T. Body Thyroid Lidney Long 1 B-3 0.002+00 1.122+03 1.122+03 1.122+03 2 P-32 2.602+06 1.142+03 9.884+0 0.002+00 0.002+00 0.002+00 0.002+00 3 C-51 0.002+00 0.002+00 1.002+00 0.002+00 0.002+00 1.002+00 1.102+03 2 P-32 2.602+06 1.142+03 9.884+0 0.002+00 0.002+00 0.002+00 1.002+00 1.002+00 3 C-51 0.002+00 0.002+00 1.542+04 4 M-54 0.002+00 9.035+02 1.072+03 0.002+00 1.002+00 5 7 C-59 0.002+00 0.031+04 1.072+04 0.002+00 0.002+00 5 C-50 0.002+00 1.772+03 3.18703 0.002+00 1.002+00 1.132+06 8 C-57 0.002+00 0.002+00 1.132+04 0.002+00 0.002+00 1 D E-86 0.002+00 1.772+04 3.18703 0.002+00 0.002+00 1.132+06 8 C-57 0.002+00 0.002+00 1.132+04 0.002+00 0.002+00 0.002+00 1 D E-86 0.002+00 1.772+04 3.18703 0.002+00 0.002+00 0.002+00 1 D E-86 0.002+00 1.122+04 0.002+00 0.002+00 0.002+00 1 D E-86 0.002+00 1.002+00 1.122+04 0.002+00 0.002+00 0.002+00 1 D E-86 0.002+00 1.002+00 1.122+04 0.002+00 0.002+00 0.002+00 1 D E-86 0.002+00 1.122+04 0.002+00 0.002+00 0.002+00 1 D E-86 0.002+00 1.582+05 1.147+05 0.002+00 0.002+00 0.002+00 1 D E-86 0.002+00 1.582+05 1.147+05 0.002+00 0.002+00 0.002+00 1 D E-86 0.002+00 1.582+05 1.147+05 0.002+00 0.002+00 0.002+00 1 D E-86 0.002+00 1.582+03 1.147+05 0.002+00 0.002+00 0.002+00 1 D E-85 0.002+00 1.582+03 1.147+05 0.002+00 0.002+00 1.582+03 1.147+05 1 D E-100 1.582+05 0.002+00 1.582+04 1.582+05 1.482+05 1 D E-100 1.582+05 0.002+00 0.222+04 1.582+05 2 D E-100 1.582+04 1.582+05 0.002+00 0	Unit: 1/2 EOUS EFFLUENTS ATTACHMENT H Page 1 of 1 ORGAN DOSE PARAMETERS TAURE FOR A CHILD FOR THE BLATE VALUET SITE 1 TAURE FOR A CHILD FOR THE BLATE VALUET SITE 11 Intermediation of the state of

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Beaver Va	alley Power S	tation	1/	2-ODC-2.02
Title: ODCM: GASEOUS EFFLU	JENTS		Unit: 1/2 Revision:	Level Of Use: In-Field Reference Page Number:
······	-A TT /	CUNCENT	2	<u>88 of 128</u>
	ATTA Pa MODES OF G	acchimen 1 1 age 1 of 1 ASEOUS RELEA	SE	
	ТА	BLE 2.3-1		
MODES OF GASI IMI	EOUS RELEASE FI PLEMENTATION (ROM BEAVER V DF 10 CFR 20 AN	ALLEY SITE VI D 10 CFR 50	ENTS FOR
RELEASE POINT	RELEASE <u>MODE 1</u>	RELEASE MODE 2	RELEASE MODE 3	RELEASE <u>MODE 4</u>
RP 1; VV-1, Auxiliary Building Vent ⁽¹⁾	Aux. Bldg. Ventilation	Containment Purge ⁽³⁾	Same As Mode	Same As Mode
RP 2; CV-1, Rx Containment/SLCRS Vent ⁽¹⁾	Leakage Collection Exhaust	Same As Mode 1	Same As Mode 1 and Containment Purge ⁽³⁾	Same As Mode
RP 3; PV-1/2, Gaseous Waste/Process Vent ⁽²⁾	Main Cond. Air Ejector, Waste Gas, Containment Vacuum	Same As Mode 1	Same As Mode 1	Same As Mode and Containmer Purge
RP 4; VV-2 SLCRS Unfiltered Pathway ⁽¹⁾	Contiguous Areas	Containment Purge ⁽³⁾	Same As Mode 1	Same As Mode
RP 5; CV-2, SLCRS Filtered Pathway ⁽¹⁾	Aux. Bldg. Ventilation	Same As Mode 1	Same As Mode 1 and Containment Purge ⁽³⁾	Same As Mode
RP 6; CB-2, Condensate Polishing Bldg Vent ⁽¹⁾	(4)	(4)	(4)	(4)
RP 7; WV-2, Waste Gas Storage Vault Vent ⁽¹⁾	(4)	(4)	(4)	(4)
RP 8; DV-2, Decontamination Bldg Vent ⁽¹⁾	(4)	(4)	. (4)	(4)
RP 9; TV-2, Turbine Bldg Vent ⁽¹⁾	(4)	(4)	. (4)	(4)

meteorology since short term meteorology is used at the time of the annual report.

⁽¹⁾ Continuous ground level meteorology is applicable
 ⁽²⁾ Continuous elevated meteorology is applicable
 ⁽³⁾ Mode established by purge from one unit, all other release points remain same as Mode 1
 ⁽⁴⁾ Not normally a radioactive release point

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Beaver Valley Power Station							P	Procedure Number:		
Title:	4					<u>., '.</u> .	U	nit:	Level Of Use:	
ODCM: GASEOUS EFFLUENTS							R	<u>1/2</u> vision:	In-Field Reference Page Number:	
				. <u></u>				2	89 of 128	
			ATT	CACHN	MENT	J				
			P	Page 1 o	of 19					
		P&I	ORGA	N DO	SE FA	CTOR	S			
	,								1	
				Table 2.3-	2					
			R VALUES	FOR BEAVER	VALLEY SIT	B				
			(Bres	/yr per uCi	/cu meter)					
	Pathway =	Inhalation								
	Age Group	= Adult								
	Buclide	Bone	Liver	1. Body	Thyroid	Kidney	Lung	GI-LLI		
	1 8-1	0.008+00	1 268+03	1 24 2 +03	1 268+03	1 268+03	1 268+03	1 268+03		
	2 P-32	1.32E+06	7.718+04	5.01E+04	0.008+00	0.008+00	0.008+00	8.64E+04		
	3 Cr-51	0.008+00	0.001+00	1.008+02	5.95E+01	2.28X+01	1.448+04	3.32E+03		
	4 ma-54 5 Fe-59	1.18 E +04	2.78 X+04	1.06 E+04	0.00 R+00	0.00E+00	1.028+06	1.88E+05		
	6 Co-57	0.007+00	6 928+02	8 71¥+02	0 008+00	0.008+00	3 708+05	3 148+04		
	7 Co-58	0.008+00	1.58E+03	2.078+03	0.00E+00	0.008+00	9.28E+05	1.06 E +05		
	8 Co-60	0.008+00	1.15 E+04	1.488+04	0.00 E+00	0.008+00	5.97B+06	2.858+05		
	9 Zn-65	3.248+04	1.03E+05	4.66E+04	0.008+00	6.90E+04	8.648+05 0.007+00	5.34E+04 1 88E+04		
	10 ND-00	0.000100	1.00100	0.001/04	5.000,00	4.442100	0.000100			
	11 Sr-89	3.048+05	0.008+00	8.728+03	0.008+00	0.00E+00	1.408+06	3.508+05		
	12 5r-90 13 7-91	9.928+07 4.628+05	0.00R+00	0.108+06 1.24R+04	0.00K+00	0.008+00 0.008+00	3.008+00 1.708+06	7.428+V0 3.85R+05		
	14 Zr-95	1.07E+05	3.44B+04	2.33E+04	0.00E+00	5.42B+04	1.778+08	1.50E+05		
	15 Wb-95	1.41B+04	7.828+03	4.21B+03	0.008+00	7.74 8+0 3	5.058+05	1.048+05		
	16 ND-97	2.22 E-0 1	5.628-02	2.051-02	0.00 2 +00	6.548-02	2.408+03	2.42 8+0 2		
	17 No-99	0.00E+00	1.218+02	2.308+01	0.00E+00	2.918+02	9.128+04	2.488+05		
	18 Tc-99=	1.038-03	2.918-03	3.708-02	0.008+00	4.428-02	7.648+02	4.168+03		
	19 Ku-103 20 Ru-108	6.918+03	0.008+00 0.008+00	8.728+02	0.00E+00	0.031+03 1.34E+05	9.368+05	9.128+05		
	31 La 11A	1 000.04	1 667.64	5 042.02	0 008-00	1 072.04	1 632.00	3 022-05		
	21 Ag-110m 22 Sh-124	1.008+04 3.128+04	1.005+04 5.898+02	0.948+03 1.248+04	0.008+00 7.558+01	1.378+04 0.008+00	1.038+06 2.488+06	3.028+90 4.068+05		
	23 Sb-125	5.34B+04	5.958+02	1.288+04	5.40E+01	0.008+00	1.748+08	1.01E+05	•	
	24 Te-127m	1.26E+04	5.778+03	1.578+03	3.298+03	4.588+04	9.608+05	1.50E+05		
	25 Te-129m	9.76 E+03	4.571+03	1.581+03	3.448+03	3.668+04	1.158+05	3.838+05		
	26 1-121	2.52E+04	3.58 8+04	2.05B+04	1.198+07	6.13B+04	0.00 E+00	8.28E+03		
	20 1-131		4		A	A				
	20 1-131 27 I-133	8.648+03	1.488+04 8.487+0F	4.528+03	2.158+06	2.588+04	0.008+00	8.888+03		
	26 1-131 27 1-133 28 Cs-134 29 Cs-136	8.64E+03 3.73E+05 3.90E+04	1.488+04 8.488+05 1.488+05	4.528+03 7.288+05 1.108+05	2.158+08 0.008+00 0.008+00	2.588+04 2.878+05 8.588+04	0.008+00 9.768+04 1.208+04	8.888+03 1.048+04 1.178+04		

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8.168+05

4.908+01 2.578+03 0.008+00 1.678+01 1.278+08 2.188+05 1.748+02 4.588+01 0.008+00 0.008+00 1.368+05 4.588+05 1.358+04 1.538+03 0.008+00 6.268+03 3.628+05 1.208+05

1.438+06 1.848+05 0.008+00 8.488+05 7.788+06

Calculated per ODCM equation 2.3-22

3.90E+04

3.44B+02 1.998+04

3.43E+06

31 Ba-140 32 La-140 33 Ce-141

34 Ce-144
Beaver Vall	ey Po	wer	Stati	on		Procedure Number: 1/2-ODC-2.02			
Title:						Un	uit:	Level Of Use:	
							1/2	In-Field Reference	
ODCM GASEOUS FEELIEN	JTS					Re	vision:	Page Number:	
ODCIA: GROLOOD LATEOLI	10						2	90 of 128	
		AT	FACHN	MENT.	J				
		r	Page 2 (of 19					
	700		age 2		OTOD	۲.			
	P&I	OKGA	AN DO	SE FA	CIORS	5			
			Table 2.3-	3					
		R VALUES	FOR BRAVER	VALLEY SIT	T				
					-				
		(nren	/yr per uCi	/cu meter)					
Pathway	= Inhalation								
Age Grou	p = Teen								
	-	•.		.					
fuclide	Bone	Liver	T. Body	Thyroid	Kidney	Lung	61-661		
1 H-3	0.00E+00	1.278+03	1.27E+03	1,278+03	1.278+03	1.278+03	1.278+03		
2 P-32	1.89E+06	1.108+05	7.16E+04	0.00E+00	0.00E+00	0.00E+00	9,281+04		
3 Cr-51	0.00E+00	0.00X+00	1.358+02	7.508+01	3.078+01	2.10E+04	3.00B+03		
4 Kn-54	0.00E+00	5.118+04	8.40 E +03	0.00 E+00	1.27E+04	1.988+06	6.68X+04		
5 Pe-59	1.59B+04	3.701+04	1.43B+04	0.008+00	0.00E+00	1.53B+06	1.788+05		
		A (14)	6 66B. C	A 448.44		5 AAT. 45	5 448.64		
8 Co~57	0.00E+00	9.44 8 +02	9.20K+02	U.OUX+00	0.001+00	5.66 E+ 05	3.145+04		

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Calculated per ODCM equation 2.3-22

7 Co-58

8 Co-60

9 Zn-85

10 Rb-86

11 Sr-89

12 Sr-90

13 Y-91

14 Zr-95 15 Nb-95

16 Nb-97

17 Mo-99

18 Tc-99m

19 Ru-103

20 Ru-106

21 Ag-110n

22 Sb-124 23 Sb-125

24 Te-127m

25 Te-129s

26 I-131

27 I-133

28 Cs-134

29 Ca-136

30 Cs-137

31 Ba-140

32 La-140

33 Ce-141

34 Ce-144

0.008+00

0.00E+00

3.868+04

0.002+00

4.34**8+0**5

1.088+08

6.618+05

1.468+05

1.868+04

3.14E-01

0.00E+00

1.38E-03

2.108+03

1.38E+04

4.30R+04

7.38B+04

1.808+04

3.548+04

5.028+05

5.15B+04

6.708+05

5.47R+04

2.84E+04

2.078+03 2.788+03

1.51B+04 1.98B+04

1.90E+05 8.40E+04

0.00E+00 1.25E+04

6.24B+04

6.68E+06

1.77**E+**04

3.15R+04

5.668+03

2.848-02

3.22**E+0**1

4.998-02

8.96E+02

1.248+04

1.688+04

1.728+04

2.188+03

6.22**R+**03

5.498+05

1.37**E+**05

3.11**E+05**

2.17E+03

1.31E+04 7.99E+03

4.918+04 2.648+04

6.708+01 3.528+03

1.348+05

0.00E+00

0.008+00

4.58R+04

1.03E+04

7.78E-02

1.691+02

3.86R-03

0.001+00

7.94**K**+02

8.08B+02

8.16E+03

1.398+04 6.588+03 2.258+03

1.138+08

1.948+05

8.48E+05

4.79E+02 2.36E+02 6.28E+01

1.908+04

4.898+06 2.028+06 2.628+05

9.84E+04 0.00E+00

1.228+04 2.058+04

0.00B+00

0.008+00

0.00E+00

0.00E+00

0.00**E+**00

0.00E+00

0.008+00

0.008+00

0.00**K**+00

0.00**E**+00

0.008+00

0.008+00

0.00E+00

0.008+00

9.768+01

7.048+01

4.38**8**+03

1.468+07

2.928+06

0.008+00

0.008+00

0.002+00

0.002+00

0.008+00

0.00E+00

0.008+00

0.00%+00

0.008+00

8.648+04

0.00E+00

0.005+00

0.00E+00

0.008+00

8 74R+04

1.00**E+04**

9.12**E-0**2

4.11E+02

5.76B-02

7.438+03

1.908+05

0.008+00

0.008+00

6.548+04

8.408+04

3.598+04

3.758+05

1.108+05

3.04E+05

2.28K+01

0.00E+00

8.888+03

1.215+06

0.008+00 2,508+04

4.588+03 5.198+04

1.34E+06

8.728+06

1.248+06

0.008+00

2.428+06

1.658+07

2.948+06

2.698+06

7.51**8**+05

3.93E+03

1.548+05

1.158+03

7.838+05

1.618+07

6,75**E+0**8

3.348+06

2.74R+06

1.668+06

1.988+06

0.00E+00

0.00**E+00**

1.46**E+0**5

1.788+04

1.218+05

2.03K+06

2.14E+05

6.14E+05

1.34E+07

9.528+04

2.59B+05

4.668+04

1.77E+04

3.71B+05

7.65E+05

4.09E+05

1.49R+05

9.688+04

2.17E+03

2.698+05

6.13E+03

1.098+05

9.60B+05

2.73E+05

3 988+05

9.928+04

1.598+05

4.058+05

6.498+03

1.038+04

9.768+03

1.098+04

8.48X+03

2.298+05

4.87E+05

1.268+05

8.648+05

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P	leaver Valle	v Po	wer	Statio	on		Pro	ocedure Nu	mber:
		<u></u>				_			1/2-ODC-2.02
I itle:							Un	ut:	Level Of Use:
							- Da	1/2	Base Mumber
ODCM: GASE	EOUS EFFLUEN	FS					Ke	2	91 of 128
		······	AT	TACHN	AENT .	J			
			F	Page 3 (of 19				
		P&I	ORGA	NDO	SE FA	CTORS	3		
		1 601	onoi			0.010	-		
									,
			,	Table 2.3-	4				
			R VALUES	FOR BRAVER	VALLEY SIT	1			
			(nren	/yr per uCi	/cu meter)				
	Pathway =	Inhalation							
	Age Group	= Child							
	Nuclide	Bone	Liver	T. Body	Thyroid	Lidney	Lung	GI-LLI	
	1 H-3	0.008+00	1.128+03	1.12 E+03	1.128+03	1.12 E+03	1.12E+03	1.12 E+ 03	
	2 P-32 3 Ca-51	2.608+06	1.148+05	9.888+04	0.008+00 8.558+01	0.008+00 2 498+01	0.008+00 1 708+04	4.228+04	
	4 Mn-54	0.001+00	4.298+04	9.51E+03	0.008+00	1.00E+04	1.58E+06	2.298+04	
	5 Pe-59	2.078+04	3.348+04	1.67 8 +04	0.008+00	0.002+00	1.278+06	7.078+04	
	6 Co-57	0.00 2 +00	9.038+02	1.07 R +03	0.008+00	0.00E+00	5.078+05	1.328+04	
	7 Co-58	0.008+00	1.778+03	3.16E+03	0.00E+00	0.00 R+00	1.11B+06	3.448+04	
	8 Co-60 9 7n-65	0.00X+00 # 25X+0#	1.318+04	2.268+04	0.008+00	0.008+00 7 148+04	7.078+06 9.957+05	9.628+04 1.638+04	
	10 Rb-86	0.00E+00	1.988+05	1.148+05	0.008+00	0.002+00	0.008+00	7.99E+03	
	11 Sr-89	5,991+05	0.008+00	1.72 E+04	0.00E+00	0.002+00	2.16 E+ 05	1.67 8+ 05	
	12 Sr-90	1.018+08	0.008+00	6.44 8+0 6	0.008+00	0.00 E+0 0	1.48 E+ 07	3.43E+05	
	13 Y-91	9.148+05	0.00E+00	2.448+04	0.00E+00	0.00 E+00	2.838+06	1.848+05	
	14 Zr-95 15 Nb-95	1.908+05 2.358+04	4.188+04 9.188+03	3.708+04 6.558+03	0.008+00 0.008+00	5.96X+04 8.62X+03	2.238+06 6.148+05	6.118+04 3.708+04	
	16 VL 07	4 207 41	7 748 40	9 607 A9	0.008.00	0 159 AD	3 408.49	1 708.04	
	17 Ho-99	0.00X+00	1.728+02	4.268+01	0.008+00	3.928+02	1.358+05	1.278+05	
	18 Te-99m	1.78 E- 03	3.48E-03	5.778-02	0.00E+00	5.078-02	9.518+02	4.81E+03	
	19 Ru-103	2.79 E+ 03	0.00 B+ 00	1.07 E+03	0.00E+00	7.03 5 +03	6.628+05	4.488+04	
	20 Ru-106	1.368+05	0.00 8 +00	1.698+04	0.00E+00	1.848+05	1.438+07	4.298+05	
	21 Åg-110m	1.698+04	1.148+04	9.148+03	0.00E+00	2.128+04	5.488+06	1.008+05	
	22 Sb-124	5.748+04	7.408+02	2.008+04	1.268+02	0.00X+00	3.248+06	1.648+05	
	23 30-125 24 Te-197-	2 498+04	1.008+02 8 558+03	2.078+04 3.028+03	5.108+01 6 07R+03	6.36R+04	2.328+00 1.48R+06	4.VJ\$+V4 7.148+04	
	25 Te-129a	1.928+04	8.85E+03	3.048+03	6.33E+03	5.03E+04	1.76E+06	1.828+05	
	26 I-131	4.818+04	4.818+04	2.73 8 +04	1.828+07	7.888+04	0.00 5 +00	2.848+03	
	27 I-133	1.668+04	2.03E+04	7.70E+03	3.858+06	3.385+04	0.00 E+00	5.48B+03	
	28 Cs-134	6.51E+05	1.018+06	2.25E+05	0.008+00	3.308+05	1.21 E +05	3.85 E +03	
	29 Ca-136	5.518+04 0 078:05	1.718+05	1.158+05	0.008+00	9.558+04 2 828:05	1.458+04	4.18K+03	
-	JV (8-13)	3.012403	u.236+V3	1.205+VJ	V. UV&+UV	1.015403	1.048403	J.068403	
	31 Ba-140 32 La-140	7.408+04 6.448+02	6.488+01 2 258+02	4.33E+03 7 55E+01	0.00E+00 0.00E+00	2.118+01 0.008+00	1.748+06 1.838+05	1.028+05	
	32 Da-199 33 Ca-141	0.958702 3 928+04	1 958+04	7 90R+03	0.008+00	8.558+03	5.448+05	5.668+04	

Calculated per ODCH equation 2.3-22

Beaver Valley Power Station	Procedure Number: 1/2-ODC-2.02			
Title:	Unit: 1/2	Level Of Use: In-Field Reference		
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P&I ORGAN DOSE FACTOR	S			
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Table 2.3-5

R VALUES FOR BRAVER VALLEY SITE

(mrem/yr per uCi/cu meter)

Pathway = Inhalation Age Group = Infant

	Nuclide	Bone	Liver	7. Body	Thyroid	Eidney	Lung	GI-LLI
1	H-3	0.00 8+00	6.478+02	6.475+02	6.47 8+0 2	6.478+02	6.47 8+0 2	6.47 8+0 2
2	₽-32	2.03E+08	1.128+05	7.74E+04	0.00 E+0 0	0.00E+00	0.00B+00	1.61E+04
3	Cr-51	0.00E+00	0.00 E+0 0	8.951+01	5.75E+01	1.32E+01	1.20B+04	3.57E+02
-4	Ma-54	0.00E+00	2.53 E+04	4.98 K +03	0.00 E+0 0	4.98 8 +03	1.00 R+ 06	7.06E+03
5	Pe-59	1.368+04	2.35 E+04	9. 488+0 3	0.008+00	0.00 E +00	1.018+06	2. 488+04
5	Co-57	0.00E+00	6.51 E+0 2	8.418+02	0.00 2+0 0	0.008+00	3.798+05	4.86E+03
7	Co-58	0.00 E +00	1.22 E+0 3	1.828+03	0.00X+00	0.00 B +00	7.771+05	1.11B+04
8	Co-60	0.00B+00	8.02 E+0 3	1.18 8+04	0.00X+00	0.00 E+0 0	4.518+06	3.19E+04
9	Zn-65	1.938+04	6.268+04	3.11 8+04	0.008+00	3.25 8+04	6.478+05	5.148+04
10	Rb-86	0.008+00	1.908+05	8.82 6+04	0.008+00	0.00 X+00	0.008+00	3.04 E +03
н	Sr-89	3.98 8 +05	0.00 E+0 0	1.148+04	0.00 E+0 0	0.008+00	2.03 8+0 6	6.40 8 +04
12	Sr-90	4.098+07	0.008+00	2.598+06	0.00 8+0 0	0.00 1 +00	1.128+07	1.311+05
13	Y-91	5-88K+05	0.008+00	1.578+04	0.00 K+0 0	0.00 E+00	2.458+06	7.03E+04
14	Zr-95	1.15 K+05	2.79 E+04	2.038+04	0.008+00	3.11 X+04	1.758+06	2.17 E+04
15	Nb-95	1.578+04	6.438+03	3.788+03	0.005+00	4.72 B+ 03	4.798+05	1.278+04
16	Nb-97	3.42B-01	7.29 5 -02	2.63 8-0 2	0.008+00	5.70K-02	3.328+03	2.69 8+04
17	No-99	0.008+00	1.658+02	3.23E+01	0.00 E+ 00	2.658+02	1.358+05	4.878+04
18	Tc -99 m	1.40E-03	2.88X-03	3.72 8 -02	0.00 E+00	3.118-02	8.118+02	2.03 E+ 03
19	Ru-103	2.028+03	0.00 E+ 00	6.79E+02	0.005+00.0	4.248+03	5.528+05	1.618+04
20	Ru-106	8.68E+04	0.008+00	1.098+04	0.00 E+0 0	1.07 R+ 05	1.168+07	1:648+05
21	Ag-110m	9.988+03	7.22 E+ 03	5.008+03	0.00 8 +00	1.09 E+ 04	3.67E+06	3.30 E +04
22	Sb-124	3.798+04	5.56E+02	1.20E+04	1.01E+02	0.00 E+ 00	2.65E+06	5.918+04
23	Sb-125	5.17 B+04	4.77E+02	1.09E+04	6.23 8+ 01	0.00 E+0 0	1.64 8 +06	1.47E+04
24	Te-127m	1.678+04	6.90 8 +03	2.078+03	4.87 8 +03	3.75 E+04	1.31E+06	2.738+04
25	Te-129n	1.418+04	6.098+03	2.238+03	4.21 8+0 3	3.18 E+04	1.688+06	6.90E+04
26	I-131	3.79B+04	4.44B+04	1.968+04	1.488+07	5.18 5+0 4	0.008+00	1.06 E+ 03
27	I-133	1.328+04	1.928+04	5.608+03	3.56B+06	2.24 5+ 04	0.00B+00	2.16E+03
28	Cs-134	3.968+05	7.03 B +05	7.45B+04	0.00 E+ 00	1.908+05	7.97 8+ 04	1.338+03
29	Cs-136	4.83E+04	1.358+05	5.298+04	0.00B+00	5.648+04	1.18 R+04	1.438+03
30	Cs-137	5.498+05	6.12 E +05	4.55E+04	0.008+00	1.728+05	7.138+04	1.33 K +03
31	Ba-140	5.60E+04	5.60 E +01	2.908+03	0.00E+00	1.34 E +01	1.60E+05	3.64 <u>8</u> +04
32	La-140	5.05B+02	2.008+02	5.15B+01	0.00 8+00	0.00 8+ 00	1.688+05	8.48E+04
33	Ce-141	2.778+04	1.678+04	1.998+03	0.00 5+00	5.25 E+ 03	5.178+05	2.16E+04
34	Ce-144	3.198+06	1.218+06	1.768+05	0.008+00	5.38B+05	9.848+06	1.488+05

Calculated per ODCM equation 2.3-22

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Table 2.3-6					
R VALUES FOR BEAVER VALLEY SITE					
(sq meter-mrem/yr per oCi/sec)					

	Nuclide	Bone	Liver	T. Body	Thyroid	Lidney	Lung	GI-LLI
1	H-3	0.00 E+00	0.008+00	0.00 E+0 0	0.00 E+0 0	0.00 E +00	0.00 8+ 00	0.00 E+00
2	P-32	0.008+00	0.00K+00	0.00E+00	0.008+00	0.008+00	0.005+00	0.008+00
3	Cr-51	4.668+06	4.66R+08	4.668+08	4.688+05	4.668+06	4.66E+06	4.66E+06
4	Bn-54	1.398+09	1.398+09	1.398+09	1.398+09	1.398+09	1.398+09	1.398+09
5	Fe-59	2.73 E+0 8	2.738+08	2.73 E+0 8	2.73 E+ 08	2.738+08	2.73 E+0 8	2.73X+08
6	Co-57	0_00 R+ 00	0_00 R +00	0.00 x+0 0	0.00 E+00	0.001+00	0.00 E+0 0	0.00%+00
7	Co-58	3.79K+08	3.79R+08	3.798+08	3.795+08	3.798+08	3,798+08	3.798+08
8	Co-60	2.158+10	2.158+10	2.15B+10	2.158+10	2.158+10	2.15E+10	2.15K+10
9	Zn-65	7.478+08	7.478+08	7.478+08	7.478+08	7.478+08	7.478+08	7.478+0B
10	Rb-86	8.998+06	8.99E+06	8.99 8+0 6	8.998+06	8.99E+06	8.99 8+0 6	8.998+06
11	Sr-89	2.168+04	2 168+04	2 16R+04	2 15 R+04	2 18R+04	2 16R+04	2.18 8+04
12	Sr-90	0.008+00	0 608+00	0.008+00	0 008+00	0.008+00	0.008+00	0.008+00
13	Y-91	1 07R+06	1 07R+06	1.078+05	1 078+06	1.078+08	1 078+06	1.078+08
14	Zr-95	2.458+08	2 45R+08	2.458+08	2.458+08	2.458+08	2.45B+08	2.458+08
15	Nb-95	1.371+08	1.37E+08	1.378+08	1.378+08	1.378+08	1.378+08	1.378+08
16	Nb-97	0.00 E +00	0.008+00	0.008+00	0.00 E+00	0.00E+00	0.00 E +00	0.008+00
17	Mo-99	4.008+06	4.008+06	4.00E+06	4.001+06	4.00E+06	4.00E+06	4.00E+06
18	Tc-99m	1.848+05	1.848+05	1.848+05	1.848+05	1.84E+05	1.848+05	1.848+05
19	Ru-103	1.085+08	1.088+08	1.08E+08	1.088+08	1.085+08	1.088+08	1.085+08
20	Ru-106	4.228+08	4.228+08	4.228+08	4.228+08	4.228+08	4.22E+0B	4.228+08
21	Ag-110m	3.448+09	3.44E+09	3.448+09	3,448+09	3,442+09	3.44E+09	3.44 8+0 9
22	Sb-124	0.00E+00	0.00E+00	0.008+00	0.008+00	0.008+00	0.00E+00	0.008+00
23	Sb-125	0.008+00	0.00E+00	0.008+00	0.00E+00	0.008+00	0.00E+00	0.00B+00
24	Te-127m	9.17E+04	9.178+04	9.17B+04	9.178+04	9.17E+04	9.17E+04	9.17B+04
25	Te-129s	1.988+07	1.988+07	1.988+07	1.988+07	1.988+07	1.988+07	1.982+07
26	I-131 ·	1.728+07	1.72 E+0 7	1.72 E +07	1.725+07	1.728+07	1.728+07	1.728+07
27	I-133	2.458+06	2.458+06	2.45E+06	2.45B+08	2.45E+06	2.45E+06	2.45B+08
28	Ca-134	6,868+09	8.86E+09	6.86E+09	6.868+09	8.86E+09	6.862+09	6,868+09
29	Ca-136	1.518+08	1.51E+08	1.51E+08	1.518+08	1.51E+08	1.518+08	1.51E+08
30	Cs-137	1.038+10	1.031+10	1.032+10	1.038+10	1.03 E +10	1.03 E +10	1.038+10
31	Ba-140	2.05 E+0 7	2.058+07	2.05 8 +07	2.05E+07	2.058+07	2.05 E +07	2.058+07
32	La-140	1.928+07	1.928+07	1.928+07	1.928+07	1.928+07	1.928+07	1.928+07
33	Ce-141	1.378+07	1.378+07	1.37E+07	1.378+07	1.378+07	1.37E+07	1.378+07
34	Ce-144	6.96E+07	6.96X+07	6.968+07	6.96E+07	6.961+07	6.96E+07	6.96B+07

Calculated per ODCM equation 2.3-23

	Beaver Valle	ev Po	wer	Stati	on		Pr	ocedure Nu	mber:
		<u> </u>	<u></u>	<u></u>				. <u> </u>	1/2-ODC-2.02
Title:							U	nit: 1/2	Level Of Use: In-Field Reference
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			F	Page 6	of 19				
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		1 003	01(0)		~~~~	01010	-		
				Table 2 3-	.7				
				14010 2.0	•				
			R VALUES	FOR BEAVE	VALLEY SIT	TB			
			(sg met	er-mrem/yr	per uCi/sec	:}			
	Pathway :	<pre>vegetation - idult</pre>							
	Age orou	P- NUUIL	Tinan	t Doda	Physical	Ti dawa	Inne	CT. 111	
	nucilae	DODE	71461	I. Douy	Illyroiu	Aldiey	COUR	91-191	
	1 R-3 2 P-32	0.008+00 t 408+09	2.268+03 8.748+07	2.268+03 5 438+07	2.268+03 0.008+00	2.288+03	2.268+03 0.008+00	2.268+03	
	3 Cr-51	0.00E+00	0.008+00	4.648+04	2.788+04	1.028+04	6.16E+04	1.17E+07	
	4 Mm-54	0.00 E+00	3.138+08	5.97 K +07	0.008+00	9.31 X+ 07	0.00E+00	9.59 8+0 8	
	5 Fe-59	1.258+08	2.96 1+ 08	1.148+08	0.001+00	0.001+00	8.285+07	9.888+08	
	8 Co-57	0.00E+00	1.178+07	1.958+07	0.00 8 +00	0.00 % +00	0.00B+00	2.978+08	
	7 Co-58	0.00E+00	3.07 8+0 7	6.89 8 +07	0.00E+00	0.00 5 +00	0.00 8+00	6.23E+08	
	8 Co-60	0.002+00	1.678+08	3.698+08	0.002+00	0.00E+00	0.00B+00	3.14E+09	
	9 Zn-65	3.17 E+08	1.018+09	4.568+08	0.008+00	6.75K+08	0.008+00	6.368+08	
	1V XD-00	0.008+00	2.198+08	1.028+05	0.008+00	. 0.005+00	0.008+00	4.33 8 +V/	.*
	11 Sr-89	9.97 B+ 09	0.00E+00	2.86 8 +08	0.00 E+0 0	0.00 E +00	0.00E+00	1.608+09	
	12 Sr-90	6.05K+11	0.008+00	1.485+11	0.00K+00	0.008+00	0.00K+00	1.758+10	
	13 1-91	1 178+00	0.008+00 3.778+05	2 558+05	0.008+00	0.008+00 5 018±05	0.008400	1 108+09	
	15 Nb-95	1.428+05	7.928+04	4.261+04	0.00E+00	7.83E+04	0.00E+00	4.81E+08	
	16 Mb_07	2 168-06	5 468-07	1 997-07	0 008100	6 378-07	0 0.07+00	2 028-03	•
	17 Ko-99	0 00R+00	8 15R+06	1 178+06	0 00R+00	1 398+07	0.00R+00	1 43R+07	
	18 Tc-99m	3.10E+00	8.77E+00	1.128+02	0.00E+00	1.33E+02	4.30E+00	5.19E+03	
	19 Ru-103	4.77B+06	0.008+00	2.063+06	0.00 E+ 00	1.828+07	0.00E+00	5.578+08	
	20 Ru-106	1.938+08	0.00 8 +00	2-441+07	0.008+00	3.725+08	0.00 8+00	1.258+10	
	21 Ag-110m	1.058+07	9.75 8 +08	5.791+08	0.008+00	1.928+07	0.00 E+ 00	3.98 E+0 9	
	22 Sb-124	1.048+08	1.968+06	4.11B+07	2.518+05	0.008+00	8.07B+07	2.948+09	
	23 Sb-125	1.37E+08	1.53 E+08	3.25X+07	1.398+05	0.008+00	1.058+08	1.508+09	
	24 Te-127n 25 Te-129n	3.498+08 2.51R+08	1.25K+08 9.38K+07	4.261+07 3.981+07	8.92K+07 8.64R+07	1.428+09 1.058+09	U.008+00 0.008+00	1.178+09 1.278+09	
	25 10 1258	£.010.00	9.005.07	9.994 Y	0.078-01	1.004.03	v. vvb. uv	2.410.44	
	26 I-131	8.08E+07	1.168+08	6.62E+07	3.79E+10	1.988+08	0.008+00	3.058+07	
	27 1-133 DB C-134	2.098+06 4 678100	J_DJ2+06 11₽±10	1.118+00 0 089+00	3.JJ&+U8 0.008±00	0.338+00 3 508±00	0.008+00 1 109±00	J.205+V0 1 048+08	
	20 UB-134 29 Ce-138	4.27R+07	1.118+1V 1.69 X +08	3.00A703 1.21R+08	0.008+00	5.538403 9 388+07	1.135103	1.918+07	
	30 Cs-137	6.36E+09	8.70E+09	5.701+09	0.00E+00	2.958+09	9.818+08	1.681+08	
	31 Ba-140	1.298+08	1.618+05	8.42\$+08	0.00 E +00	5.49 8 +04	9.24 8 +04	2.658+08	
	- 32 La-140	1.98E+03	9.97 E +02	2.63 E +02	0.00 E +00	0.00 8+0 0	0.008+00	7.32E+07	
	33 Ce-141	1.97 E+ 05	1.338+05	1.518+04	0.008+00	6.19 E +04	0.00E+00	5.10B+08	
					A AAP			4 4 4 5 4 4	

All nuclides (except H-3) calculated per ODCH equation 2.3-26 $\rm H\text{-}3$ calculated per ODCH equation 2.3-29

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Bear	ver Valle	v Po	wer ?	Statio	on		Pro	cedure Nur 1	$\frac{1}{2}$ ODC 2 02
Title:		<u> </u>						1 it:	Level Of Use:
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ODCM: GASEOUS	S EFFLUEN	ГS					Re	vision: 2	Page Number: 95 of 128
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			F	Page 7 c	of 19				
		P&I	ORGA	AN DO	SE FA	CTORS)		
í									L
					-				
			D DATIME	Table 2.3-	B WALLEY CTT	7			
			л ульная	PUR DEAVER	116 180000	۵ ۱			
	-	.	(sg met	er-bren/yr	per uci/sec	,			
	Pathway = Age Group	Vegetation = Teen							
	Nuclide	Bone	Liver	7. Body	Thyroid	Kidney	Long	GI-LLI	
	1 H-3	0.008+00	2.59 E+ 03	2.59 E+ 03	2.59 E+ 03	2.598+03	2.598+03	2.591+03	
	2 P-32 3 Cr-51	1.61 8+09 0.00 8+00	9.98 8+0 7 0.00 8 +00	6.24 8 +07 6.17 8 +04	0.00K+00 3.43K+04	0.008+00 1.358+04	0.008+00 8.818+04	1.35K+08 1.04K+07	
	4 Mn-54 5 Fe-59	0.00E+00 1.79E+08	4.54 8+08 4.19 8 +08	9.01 E+07 1.62 E+0 8	0.00E+00 0.00E+00	1.36 E+ 08 0.00 E+00	0.008+00 1.328+08	9.328+08 9.908+08	
	6 Co-57	0.00E+00	1.79E+07	3.00 E +07	0.00 %+00	0.00 E+00	0.008+00	3.33 E +08	
	7 Co-58 8 Co-60	0.008+00 0.008+00	4.368+07 2.498+08	1.00E+08	0.00 X+00 0.00 X+00	0.008+00 0.008+00	0.008+00 0.008+00	6.01E+08 3 24E+09	
	9 Zn-65	4.248+08	1.478+09	6.878+08	0.00E+00	9.428+08	0.002+00	6.238+08	
	11 6- 80	1. 518.10	4.745TV0	1.238100	0.008100	0.008.00	0.008.00	1 907.00	
	11 Sr-89 12 Sr-90	7.518+10 7.518+11	0.00E+00	1.85 E+11	0.00E+00	0.001+00	0.00R+00	2.118+10	
	13 Y-91 14 Zr-95	7_848+06 1.728+06	0.008+00 5.438+05	2.108+05 3.748+05	0.00K+00 0.00E+00	0.008+00 7.988+05	0.00K+00 0.00R+00	3.218+09 1.258+09	
	15 Nb-95	1.928+05	1.078+05	5.87 E +04	0.00 E+ 00	1.031+05	0.001+00	4.5618+08	
	16 Nb-97 17 Mo-99	2.00E-06 0.00E+00	4.978-07 5.658+06	1.81K-07 1.08K+06	0.00 E+00 0.00 E+00	5.818-07 1.298+07	0.008+00 0.008+00	1.19E-02 1.01E+07	
	18 Tc-99m 19 Ru-103	2.74E+00 6.82E+06	7.64E+00 0.00E+00	9.90 E+01 2.92 E+06	0.00 2+00 0.00 2+00	1.148+02 2.418+07	4.248+00 0.008+00	5.028+03 5.708+08	
	20 Ru-106	2.388+08	0.00E+00	3.90 8+ 07	0.008+00	5.971+08	0.008+00	1.482+10	
	21 Ag-110m 22 Sh-124	1.528+07 1.548+08	1.438+07 2.848+06	8.728+06 6.028+07	0.008+00 3.508+05	2.748+07 0.008+00	0.008+00	4.038+09 3 118+09	
	23 Sb-125	2.148+08	2.348+06	5.01E+07	2.055+05	0.008+00	1.888+08	1.678+09	
	24 1e-127m 25 Te-129m	5.528+08 3.628+08	1.348+08	0.008+07 5.738+07	1.315+08 1.17 5 +08	4.248+09 1.518+09	0.008+00 0.008+00	1.368+09	
	26 I-131	7.69 8+0 7	1.088+08	5.788+07	3.14E+10	1.858+08	0.008+00	2.13 8+ 07	
	27 I-133 28 Cs-134	1.94 8+06 7.10 8+0 9	3.298+06 1.678+10	1.008+06 7.758+09	4.598+08 0.008+00	5.778+06 5.318+09	0.00X+00 2.03X+09	2.498+08 2.088+08	
	29 Cs-136 30 Cs-137	4.38E+07 1.01E+10	1.72 8+08 1.35 8 +10	1.168+08 4.698+09	0.00 8+00 0.00 8+00	9.37 8 +07 4.59 8 +09	1.488+07 1.788+09	1.398+07 1.928+08	
	31 Ba-140	1.388+08	1.69 8 +05	8.90 8 +06	0.00E+00	5.748+04	1.148+05	2.13 E +08	
	32 La-140 33 Ce-141	1.818+03	8.88 8+ 02 1.898+05	2.368+02 2.178+04	0.008+00 0.008+00	0.00X+00 8.90X+04	0.008+00 0.008+00	5.10 E+ 07 5.41 E +08	
	34 Ce-144	5.278+07	2.18E+07	2.838+06	0.00 E+0 0	1.308+07	0.00R+00	1.33B+10	x
	All nuclid	les (except	H-3) calcu	lated per O	DCH equation	n 2.3-26			
	n-J C81C01	aren het o	von eguatión	u 6.J-6J					

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Bea	aver Valle	ev Po	ower	Stati	on		Pro	ocedure Nui	mber: $\frac{1}{2}$ ODC 2.02
Title:						- <u></u>	Un	it:	Level Of Use:
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ODCM: GASEOU	US EFFLUEN	1TS					Re	vision: 2	Page Number: 96 of 128
			AT	TACHI	MENT	J			
			3	Page 8	of 19				
		P&	IORG	AN DO	SE FA	CTORS	5		·.
				Table 2.3-	.9				
			R VALUES	FOR BEAVES	VALLEY SIT	B			·
			(sq met	er-sres/yr	per uCi/sec	:)			
	Pathway : Age Group	= Vegetation p = Child	1						
	Nuclide	Bone	Liver	T. Body	Thyroid	Kidney	Lung	GI-LLI	
	1 H-3	0,00 8 +00	4.01 E +03	4.01R+03	4.01B+03	4.01E+03	4.01E+03	4.01 8+0 3	
	2 P-32 3 Cm-51	3.378+09	1.58E+08	1.308+08	0.008+00	0.008+00	0.00E+00	9.328+07	
	4 Ma-54	0.002+00	6.65 E+08	1.778+08	0.008+00	1.868+08	0.008+00	5.58 E+ 08	
	5 Fe-59	3.98 8 +08	6.43 E +08	3.20 8+ 08	0.00E+00	0.008+00	1.878+08	6.70 5 +08	
	6 Co-57 7 Co-58	0.00E+00	2.99 1+07 6 44 1+07	6.04E+07 1.97E+08	0.00E+00 0.00R+00	0.00E+00 0.00E+00	0.008+00 0.008+00	2.458+08 3.768+08	
	8 Co-60	0.00 E+00	3.781+08	1.128+09	0.008+00	0.005+00	0.00E+00	2.108+09	
	9 Zn-65 10 Rb-86	8.13 E+08 0.00 E+0 0	2.17 5+0 9 4.52 5+0 8	1.35X+09 2.788+08	0.00K+00 0.00E+00	1.36K+09 0.00K+00	0.008+00 0.008+00	3.80 8 +08 2.91 8 +07	
	11 Sr-89	3.60 E +10	0.00 E+0 0	1.038+09	0.00E+00	0.008+00	0.00 E+ 00	1.39 8 +09	
	12 Sr-90	1.24 E +12	0.008+00	3.158+11	0.00E+00	0.008+00	0.00E+00	1.678+10 7 488+09	
	13 1-91 14 Zr-95	3.86 E +06	8.48 8+0 5	4.558+05 7.558+05	0.00E+00	1.21 E+06	0.00E+00	8.85E+08	
	15 Nb-95	4.118+05	1.60 E+0 5	1.148+05	0.008+00	1.508+05	0.008+00	2.968+08	
	16 Nb-97	3.658-06	6.59E-07	3.088-07	0.008+00	7.31E-07	0.008+00	2.038-01	
	17 no-99 18 Tc-99m	4.71E+00	9.24 B +00	1.53B+02	0.00E+00	1.348+02	4.69B+00	5.26B+03	
	19 Ru-103 20 Ru-106	1.538+07 7 458+08	0.00 E+00 0.00 E+00	5.90 8+06 9.30 8+0 7	0.008+00 0.008+00	3.868+07 1.018+09	0.00E+00 0.00R+00	3.978+08 1.168+10	
	21 Ag-110m	3 218+07	2 178+07	1 73R+07	0 007+00	A 048+07	0 008+00	2 58 F+09	
	22 Sb-124	3.528+08	4.57E+06	1.238+08	7.778+05	0.00E+00	1.958+08	2.208+09	
	23 Sb-125	4.998+08	3.858+06	1.058+08	4.638+05	0.008+00	2.78E+08	1.198+09	
	25 Te-129	8.415+08	2.35E+08	1.318+08	2.718+08	2.47 8+09	0.008+00	1.03B+09	
	26 1-131	1.43 E+0 8	1.44E+08	8.178+07	4.768+10	2.368+08	0.008+00	1.288+07	
	27 I-133 28 Ca-134	3,53 E+06 1,60 R +10	4.378+06 2.638+10	1.65K+06 5.55R+09	8.12K+08 0.00R+00	7.288+06 8.158+09	0.008+00 2.938+09	1.758+06 1.428+08	
	29 Ca-136	8.24 E+0 7	2.27E+08	1.475+08	0.00 8+00	1.21 E+ 08	1.80E+07	7.96E+06	
	30 Ca-137	2.398+10	2.29 E+ 10	3.385+09	0.008+00	7.46 E +09	2.688+09	1.43B+0B	
	31 Ba-140 32 La-140	2.778+08 3.258+02	2.428+07	1.828+07 3.838+07	0.008+00 0.008+00	7.898+04 0.008+00	1.458+05 0.008+00	1.408+08 3.168+07	
	33 Ce-141	6.56 B+0 5	3.278+05	4.868+05	0.008+00	1.438+05	0.008+00	4.088+08	
	34 Ce-144	1.278+08	3.98X+07	6.78 8+ 06	0.00 E +00	2.218+07	0.00 2+00	1.048+10	
	.,, ,,	J	D 2)	1. + . d	M	2 3-26			

Bea	aver Vallev Po	wer Statio	on	Procedure N	$1/2 \cap DC_2 \cap C_2$
Title:				Unit:	Level Of Use:
				1/2	In-Field Reference
ODCM: GASEO	US EFFLUENTS			Revision:	Page Number:
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			$\sim f 10$		
	D&	I ORGAN DO	SE EACTOR	25	
. · · ·	100		SET ACTO	0	
:					ı
		Table 2.3-	10		
		R VALLIES FOR BRAVER	VALLEY SITE		
		(sg meter-mrem/yr	per uCi/sec)		
	Pathway = Meat				
	ngo vroup - Autit	.			
•	Nuclide Bone	Liver T. Body	Thyroid Kidr	ey Lung 61-LL	Ι
	1 H-3 0.00 E +00	3.258+02 3.258+02	3.25E+02 3.25E+	02 3.258+02 3.258+02	2
	2 P-32 3.958+09 3 Cr-51 0.008+00	2.468+08 1.538+08 0.008+00 5.868+03	3.50E+03 1.29E+	00 0.008+00 4.448+02 03 7.788+03 1.478+00	
	4 Mn-54 0.008+00	6.49E+06 1.24E+06	0.008+00 1.938+	06 0.008+00 1.998+00	
	J 18-35 2.145+VO	3.048400 1.938400	0.005+00 0.005+	VV 1.418+VO 1.008+U	,
	6 Co-57 0.008+00 7 Co-58 0.008+00	4.018+06 6.668+06 1 428+07 3 188+07	0.008+00 0.008+ 0.008+00 0.008+	00 0.008+00 1.028+08 00 0.008+00 2.878+08	}
	8 Co-60 0.00 R +00	5.12E+07 1.13E+08	0.008+00 0.008+	00 0.00 x +00 9.61 x +08	
	9 2n-65 2.54K+08 10 Rb-86 0.00R+00	8.098+08 3.568+08 4.118+08 1.928+08	0.008+00 5.418+ 0.008+00 0.008+	08 0.008+00 5.108+08 00 0.008+00 8.118+07	
	11 Sm-89 2 418+08	0.008100 6.928106	0 008+00 0 008+	00 0.00F+00 3.87F+07	,
	12 Sr-90 8.412+09	0.008+00 2.068+09	0.008+00 0.008+	00 0.00 E +00 2.43 E +08	1
	13 Y-91 8.948+05 14 Zr-95 1.478+06	0.008+00 2.398+04 4.718+05 3.198+05	0.008+00 0.008+	00 0.008+00 4.928+08 05 0.008+00 1.498+09	}
	15 Wb-95 1.898+06	1.058+06 5.648+05	0.00E+00 1.04E+	06 0.008+00 6.378+09)
	16 Nb-97 *********	*******	0.00E+00 *******	*** 0.00B+00 ********	*
	17 No-99 0.008+00 18 Tc-99m 3.838-21	8.518+04 1.628+04 1.068-20 1.368-19	0.008+00 1.938+ 0.008+00 1.648-	05 0.008+00 1.978+05 19 5.308-21 6.408-18	
	19 Ru-103 8.578+07	0.008+00 3.698+07	0.00E+00 3.27E+	08 0.00E+00 1.00E+10	1
	20 Ku-106 1.97K+09	V.UUK+00 2.498+08	0.008+00 3.808+	və 0.008+00 1.278+11	
	21 Ag-110m 4.778+06	4.418+06 2.628+06	0.008+00 8.878+	06 0.008+00 1.808+09	
	23 Sb-125 0.00R+00	0.00B+00 0.00B+00	0.008+00 0.008+	00 0.008+00 0.008+00	
	24 Te-127n 8.388+08 25 Te-129n 9.338+08	3.008+08 1.028+08 3.488+08 1 488+08	2.148+08 3.408+ 3.218+08 3.898+	09 0.008+00 2.818+09 09 0.008+00 4 708+09	
	-	1 010.00 0 400.00	4 000-00 0.000		
	26 I-131 9.13K+06 27 I-133 3.128-01	1.318+07 7.488+06 5.428-01 1.658-01	4.288+09 2.248+ 7.968+01 9.468-	01 0.008+00 3.458+06 01 0.008+00 4.878-01	
	28 Ca-134 4.538+08 29 Ca-136 1 028+07	1.088+09 8.818+08 4 048+07 2 918+07	0.008+00 3.498+	08 1.168+08 1.898+07 07 3.088+06 4.598±06	
	30 Ca-137 5.908+08	8.068+08 5.288+08	0.00E+00 2.74E+	DB 9.108+07 1.568+07	
	31 Ba-140 2.44R+07	3.06 8+04 1.608+06	0.008+00 1.04R+	04 1.758+04 5.028+07	
	32 La-140 3.16B-02	1.598-02 4.218-03	0.00E+00 0.00E+	0 0.008+00 1.178+03	
	33 Ce-141 1.16R+04 34 Ce-144 1.03R+06	7.838+03 8.888+02 4.328+05 5.558+04	U.UOK+00 3.64E+ 0.00E+00 2.56E+	J3 U.UOB+OO 2.99B+O7 D5 0.00B+OO 3.50R+OB	
	A31	11 9)] 1 01			
	B-3 calculated per O	n-s; calculated per OI OCH equation 2.3-30	von equation 2.3-25		

Beaver Valley Power Station	Procedure Number: 1/2-ODC-2.02				
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ATTACHMENT J Page 10 of 19 P&I ORGAN DOSE FACTORS

Table 2.3-11

R VALUES FOR BRAVER VALLEY SITE

(sq meter-mrem/yr per uCi/sec)

Pathway = Meat Age Group = Teen

	Muclide	Bone	Liver	T. Body	Thyroid	Kidney	Lung	6I-LLI
1	H-3	0.008+00	1.94 R+0 2	1.948+02	1.948+02	1.948+02	1.948+02	1.94 K +02
2	P-32	3.348+09	2.07 K+08	1.29E+08	0.008+00	0.00E+00	0.00E+00	2.80E+08
3	Cr-51	0.005+00	0.00E+00	4.69E+03	2.608+03	1.03B+03	6.69E+03	7.88E+05
4	Mn-54	0.00E+00	4.958+06	9.818+05	0.008+00	1.48B+06	0.008+00	1.01E+07
5	7e-59	1.718+08	4.008+08	1.548+08	0.00 8+0 0	0.00 8+00	1.263+08	9.45 E+ 08
6	Co-57	0.00B+00	3.22 8+0 5	5.40E+06	0.00 E+00	0.008+00	0.008+00	6.01E+07
7	Co-58	0.00B+00	1.098+07	2.52E+07	0.00E+00	0.00 B+00	0.00E+00	1.518+08
8	Co-60	0.00E+00	3.971+07	8.95E+07	0.008+00	0.00 E +00	0.00E+00	5.17K+08
9	Zn-65	1.79E+08	6.21E+08	2.90E+08	0.00E+00	3.97 B+0 8	0.00 B +00	2.53K+08
10	Rb-86	0.008+00	3.43 R +0B	1.61 E+08	0.00 E+ 00	0.005+00	0.00 E+00	5.08E+07
11	Sr-89	2.038+08	0.00 8+0 0	5.83 8+ 06	0.00E+00	0.008+00	0.00 E+00	2.42E+07
12	Sr-90	5.44B+09	0.00 E+0 0	1.34 E+ 09	0.00 E+0 0	0.00E+00	0.00 E+ 00	1.53E+08
13	Y-91	7.53E+05	0.00E+00	2.02 E+04	0.00 8+ 00	0.008+00	0.00 X+00	3.09 B+ 08
14	Zr-95	1.18E+06	3.71E+05	2.55 E+ 05	0.00 E+00	5.458+05	0.00 E +00	8.56 E+ 08
15	Nb-95	1.478+06	8.178+05	4.508+05	0.008+00	7.928+05	0.00 E+00	3.49E+09
16	ND-97	******	*******	********	0.00E+00	*******	0.008+00	*******
17	No~99	0.002+00	7.038+04	1.34E+04	0.00 B+0 0	1.61 B +05	0.00 %+00	1.268+05
18	Tc-991	3.04E-21	8.48 8- 21	1.10 E-19	0.00 E +00	1.26 E-19	4:71 8- 21	5.57 E -18
19	Ru-103	6.96 8+ 07	0.00 B+0 0	2.98 8+0 7	0.00 8 +00	2.46 6+ 08	0.00 8+00	5.83 E+ 09
20	Ru-106	1.288+09	0.00 E+0 0	2.09 E+0 8	0.008+00	3.19 E+0 9	0.00 E +00	7.94 E +10
21	Ag-110m	3.618+06	3.428+06	2.088+05	0.008+00	6.52 8+06	0.00 E+00	9.60 E +08
22	Sb-124	0.008+00	0.00E+00	0.008+00	0.008+00	0.00 E+00	0.00B+00	0.00 B +00
23	Sb-125	0.00E+00	0.00 R+0 0	0.00 E+00	0.008+00	0.00 6+00	0.00 8+0 0	0.00 E+ 00
24	Te-127a	7_07 E+08	2.51 E+0 8	8.41 E+0 7	1.688+08	2.87K+09	0.008+00	1.768+09
25	Te-129 b	7.828+08	2.908+08	1.248+08	2.528+08	3.278+09	0.008+00	2.938+09
26	I-131	7.598+06	1.068+07	5.71 8+0 6	3.108+09	1.838+07	0.00B+00	2.10 E+06
27	I-133	2.61 E-01	4.428-01	1.35 E- 01	6.17 8+ 01	7.75 B- 01	0.00 E+ 00	3.34B-01
28	Cs-134	3.60 E+0 8	8.48 8+0 8	3.938+08	0.00 8+ 00	2.69 X+ 08	1.03 E +08	1.058+07
29	Cs-136	7.98K+06	3.14 8+0 7	2.11 8+0 7	0.00 X+0 0	1.71 X+ 07	2.69 B +06	2.538+06
30	Cs-137	4.90B+08	6.51 8+0 8	2.278+08	0.008+00	2.22 B+08	8.61 8 +07	9.27 E +06
31	Ba-140	2.028+07	2.47 8+04	1.308+06	0.00 R+0 0	8.381+03	1.66B+04	3.11 E+ 07
32	La-140	2.608-02	1.28 8-0 2	3.40 8-03	0.008+00	0.008+00	0.00 8 +00	7.33 8 +02
33	Ce-141	9.72E+03	6.49 8+0 3	7.46 8+ 02	0.008+00	3.06 8 +03	0.008+00	1.868+07
34	Ce-144	8.72B+05	3.618+05	4.68 8+04	0.008+00	2.15 E+ 05	0.002+00	2.19 E+ 08

All nuclides (except 8-3) calculated per ODCM equation 2.3-25 H-3 calculated per ODCM equation 2.3-30 ι,

В	eaver Valle	ey Po	wer	Statio	on			l l l l l l l l l l l l l l l l l l l	/2-ODC-2.02
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	·····		AT	FACHN	AENT	J	I		
			Р	age 11	of 19				
		P&1	I ORGA	N DO	SE FA	CTORS			
i									1
				Table 2.3-	12				
			R VALUBS	FOR BEAVER	VALLEY SIT	ľ			
			(sq met	er-mrem/yr	per uCi/sec	:)			
	Pathwav =	Heat	-						
	Age Group	= Child							
	Huclide	Bone	Liver	7. Body	Thyroid	Kidney	Lung	GI-LLI	
	1 H-3	0.008+00	2.34 8 +02	2.34E+02	2.34 E+ 02	2.348+02	2.348+02	2.348+02	
	2 P-32 3 Cr-51	6.298+09 0.008+00	2.948+08 0 008+00	2.438+08 7 318+03	0.00K+00 4.06K+03	0.00K+00 1.11R+03	0.00K+00 7 41R+03	1.748+08 3.888+05	
	4 Kn-54	0.00E+00	5.868+08	1.518+06	0.00E+00	1.59E+06	0.00E+00	4.75E+06	
	5 Pe-59	3.04E+08	4.918+08	2.458+08	0.00 E+0 0	0.008+00	1.428+08	5.128+08	
	6 Co-57	0.00E+00	4.218+08	8.52E+06	0.008+00	0.008+00	0.008+00	3.458+07	
	8 Co-50	0.008+00	1.208+07 4.728+07	1.39 8+0 0	0.00E+00	0.008+00	0.00B+00	2.61E+08	
	9 Zn-85	2.68E+08	7.158+08	4.44 8 +08	0.00E+00	4.508+08	0.00E+00	1.25E+08	
	10 KD-96	0.008+00	4.878+08	2.998408	0.0011400	0.008+00	0.008400	3.138+07	
	11 Sr-89	3.858+08	0.008+00	1.108+07	0.00X+00	0.008+00	0.00B+00	1.498+07	
	12 SF-50 13 Y-91	1.428+06	0.008+00	3.81E+04	0.008+00	0.00 E +00	0.00B+00	1.908+08	
	14 Zr-95	2.098+06	4.598+05	4.09 E+0 5	0.00E+00	6.57 8 +05	0.00E+00	4.79E+08	
	15 Nb-95	2.548+06	9.908+05	7.07 8 +05	0.00 %+0 0	9.308+05	0.008+00	1.838+09	
	16 Nb-97 17 Wo-99	1 00R+00	************* 9 798+04	\$\$\$\$\$\$\$\$\$\$ 2 428+04	0.00X+00 0.00X+00	*********** 2 09R+05	0.00E+00 0.00E+00	\$\$\$\$\$\$\$\$\$	
	18 Tc-99m	5.338-21	1.058-20	1.738-19	0.00E+00	1.528-19	5.318-21	5.95B-18	
	19 Ru-103	1.268+08	0.008+00	4.85E+07	0.00E+00	3.18E+08	0.00E+00	3.26E+09	
	20 Ku-100	J.166703	0.008100	0.032100	0.005700	1,218103	0.006400	4.035110	
	21 Ag-110m	5.998+06	4.048+06	3.238+06	0.00E+00	7.538+06	0.00E+00	4.818+08	
	23 Sb-125	0.008+00	0.008+00	0.001+00	0.00E+00	0.008+00	0.00E+00	0.00E+00	
	24 Te-127m	1.33 E+09	3.598+08	1.588+08	3.19 8+0 8	3.80E+09	0.00 8 +00	1.08E+09	
	25 Te-129m	1.478+09	4.118+08	2.298+08	4.758+08	4.338+09	0.00K+00	1.808+09	:
	26 I-131	1.41 B +07	1.428+07	8.04E+06	4.68E+09	2.32 E+ 07	0.008+00	1.268+06	
	27 I-133 28 Ca-134	4.84E-01 6.35E+08	5.998-01 1 048+09	2.278-01 2.208+08	1.118+02	9.98K-01 3.23K+08	0.008+00	2.418-01 5.628+06	
	29 Cs-136	1.388+07	3.788+07	2.458+07	0.005+00	2.01E+07	3.001+06	1.338+06	
	30 Cs-137	9.028+08	8.638+08	1.271+08	0.00 8+0 0	2.81E+08	1.018+08	5.408+06	
	31 Ba-140	3.72 8 +07	3.28 2+ 06	2.178+06	0.00 8 +00	1.08 E+04	1.94 8 +04	1.898+07	
	32 La-140	4.768-02	1.668-02	5.61 B-0 3	0.00K+00	0.008+00	0.00E+00	4.63E+02	
	33 Ce-141 34 Ce-144	1.838+04 1.648+06	9.138+03 5.158+05	1.388+04 8.778+04	0.008+00 0.008+00	4.00K+03 2.85R+05	0.008+00 0.008+00	1.14 6+07 1.34 R+ 08	
	131 - 11		11 21			- 0 2 65			
	All Ducli R-3 calcu	oes (except lated per OI	n-oj calcu. CN equation	lated per Oi v 2.3-30	nn eguatio	n 2.J-25			

Beave	er Valle	ev Pr	wer	Stati	nn		Pro	cedure Nun	nber:
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ODCM. GASEOUS		1.0						2	100 of 128
			AT	TACHN	AENT .	J			
			Р	age 12	of 19				
		Р&	I ORG	AN DO	SE FA	CTORS	5		
				Table 2.3-	13				
			R VALOBS	FOR BEAVER	VALLEY SIT	8			
			(sg met	er-mrem/yr	per uCi/sec)			
	Pathway =	Cow Hilk							
	Age Group	= Adult							
	Nuclide	Bone	Liver	1. Body	Thyroid	Kidney	Lung	GI-LLI	
	1 11-3	0 008+00	7 638402	7 638+02	7 638+02	7 638+02	7 838+02	7 63R+02	
	2 P-32	1.45 E +10	9.018+08	5.608+08	0.00E+00	0.008+00	0.00E+00	1.63E+09	
	3 Cr-51	0.00 E+00	0.008+00	2.385+04	1.428+04	5.248+03	3.158+04	5.988+06	
	5 Fe-59	2.40 E+0 7	5.638+07	2.16E+07	0.00E+00	0.008+00	1.578+07	1.888+08	
	8 Co-57	0 00 7 +00	0 108-05	1 518+08	0.008+00	0.008+00	0 008+00	2 318+07	
	7 Co-58	0.00E+00	3.67 E +06	8.228+06	0.00E+00	0.00E+00	0.008+00	7.43E+07	
	8 Co-60	0.008+00	1.12 E+0 7	2.46E+07	0.00 E+00	0.008+00	0.00 8+ 00	2.10E+08	
	9 Za-65 10 Rh-86	9.80E+08	3.12K+09 2 19K+09	1.41E+09 1.02E+09	0.008+00 0.008+00	2.09E+09 0 00R+00	0.00E+00 0.00E+00	1.96E+09 4.32E+08	
	10 10 00	0.000.00	2.155.05	1.020.00					
	11 Sr-89	1.168+09	0.008+00	3.33E+07	0.000+00	0.008+00	0.00E+00	1.865+08	
	13 8-91	5.105710 6.788+03	0.008+00	1.818+02	0.008+00	0.008+00	0.008+00	3.738+06	
	14 Zr-95	7.40E+02	2.37E+02	1.618+02	0.00 E+00	3.72 E+0 2	0.00E+00	7.52 E+0 5	
	15 Nb-95	8.77K+04	3.778+04	2.038+04	0.008+00	3.72 B +04	0.00 8 +90	2.291408	
	16 Nb-97	2.81K-12	7.11 E-13	2.608-13	0.00 8+0 0	8.30 5 -13	0.008+00	2.62 E -09	
	17 Mo-99	0.008+00	2.118+07	4.018+08	0.008+00	4.77E+07	0.00E+00	4.888+07	
	16 Tc-99m 10 Pm-102	2.836+00	7.998+00	1.02K+02 3.57R+02	0.008400	1.218+0Z 9 16F403	3.918+00 0.00P+00	4.735+93 0.887+04	
	20 Ru-105	1.438+04	0.00E+00	1.81B+03	0.008+00	2.77 8+04	0.008+00	9.278+05	
	01 4 - 110	1 109.00	3 6/8-07	1 160.07	0 009.00	7 640.47	0 008-00	1 578.10	
	21 Ag-1108 22 Sh-124	4,158+07 0 007+00	3.04∐+ህ/ ስ.ስ∂₽⊥∩ሶ	4.208+V/ 0.007±00	0.00£+00 በ በሰደ±ሰበ	1.308+V/ 0 008+04	0.008+00 0.008+00	1.318410	
	23 Sh-125	0.002+00	0.008+00	0.008+00	0.008+00	0.008+00	0.008+00	0.008+00	
	24 Te-127n	3.44E+07	1.238+07	4.198+06	8.79 E+06	1.408+08	0_00B+00	1.158+08	
2 2	25 Te-129m	4.958+07	1.858+07	7.848+08	1.708+07	2.078+08	0.00B+00	2.498+08	
	26 I-131	2.528+08	3.60 E +0B	2.068+08	1.188+11	8.17 E +08	0.008+00	9.508+07	
	27 I-133	3.298+06	5.72E+06	1.758+06	8.418+08	9.99 8 +06	0.008+00	5.148+08	
	28 Cs-134	3.898+09	9.27 8 +09	7.58 8 +09	0.00E+00	3.00B+09	9_96E+08	1.628+08	
	29 Cs-136	2.238+08	8.821+08	6.35 8 +08	0.008+00	4.918+08	6.73B+07	1.008+08	
	30 Ca-137	4.998+09	6.82X+09	4.478+09	U.UOK+00	Z.J28409	1.108408	1.328+08	
	31 Ba-140	2.288+07	2.878+04	1.498+06	0.008+00	9.748+03	1.842+04	4.708+07	
	32 6a-140	3.848400	1.938+00	5.118-01 3 048+03	0.008+00	0.008+00 1 959-09	0.008+00	1.428+03	
	33 68-141	3.338403	6. (VE+VJ	J.UUBTU/	0.005100	£.238700	V.VU11VV	1.008101	
	34 Co-144	2 548+05	1 08 ₽ ≠05	1.368+04	0.008+00	6.29R+04	0.008+00	8.5AR+07	

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Be	eaver Valle	ev Po	wer	Statio	on		Pro	Procedure Number:				
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			ATT	FACHN	AENT.	J .						
			Ρ	age 13	of 19							
		P&1	ORGA	N DO	SE FA	CTORS	1					
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				Table 2.3-	14							
			D WITHRC		DATIRY CTT	7						
			N VALABO	IVA DEAVEA	AUPORI SII	5						
			(sq met	er-sres/yr	per uCi/sec	}						
	Pathway =	Cow Milk										
	Age Group	= Teen										
	Naclide	Bone	Liver	T. Body	Thyroid	Kidney	Lung	GI-LLI				
	1 H-3	0.008+00	9.94 8+ 02	9.94 1 +02	9.94 K+0 2	9.94 E +02	9.94 8 +02	9.94 8 +02				
	2 P-32	2.678+10	1.662+09	1.042+09	0.008+00	0.00E+00	0.00E+00	2.258+09				
	3 Cr-51	0.008+00	0.008+00	4.158+04	2.318+04	9.108+03 2.058+06	5.93K+04	5.978+05 2.038+07				
	4 mn-34 5 ¥e-59	4.188+07	9.911+06 9.768+07	1.901+00 3.771+07	0.008+00	2.958+00 0.008+00	3.08E+07	2.31 E +98				
	8 Co-57	0.008.00	1 207-06	0 888108	0 008100	0 008+00	0.008+00	2 092102				
	7 Co-58	0.008+00	6 17 K+06	1.42E+07	0.00K+00	0.008+00	0.008+00	8.518+07				
	8 Co-60	0.008+00	1.898+07	4.268+07	0.00E+00	0.00E+00	0.008+00	2.488+08				
	9 Zn-85	1.51E+09	5.23E+09	2.448+09	0.00E+00	3.348+09	0.00E+00	2.21E+09	-			
	10 Rb-86	0.008+00	3.99 E +09	1.87 E +09	0.005+00	0.00B+00	0.008+00	5.91 E +08				
	11 Sr-89	2.14B+09	0.008+00	6.12 R +07	0.00 R+00	0.00 B+00	0.001+00	2.55 E +08				
	12 Sr-90	4.47E+10	0.00E+00	1.10 E +10	0.00 E+ 00	0.00 B+ 00	0.00 R+ 00	1.25 E+ 09				
	13 Y-91	1.25 E+04	0.008+00	3.358+02	0.008+00	0.008+00	0.002+00	5.11 8 +06				
	14 Zr-95	1.298+03	4.088+02	2.818+02	0.008+00	6.008+02	0.00E+00	9.428+05 B. 748-00				
	T2 NP-32	1.168405	5.418+04	3.038104	0.001+00	6.218+04	0.008+00	2.748+05				
	16 ND-97	5.13R-12	1.271-12	4.658-13	0.00 E+ 00	1.498-12	0.008+00	3.048-08				
	17 No-99	U. 00K+00	J.808+07	1.255+06	V.00K+00	0.708+07	V.VUX+00	0.011+07 9.002:00				
	10 TC-998 10 Dog 109	4,508+00 1 478100	1.3(8+01	1.112402	0.008+00	2.048+02 5 908±02	1.057400 U.022400	0.308+V3 1 238+05				
	20 Ru-106	2.03E+04	0.00E+00	3.328+03	0.00E+00	5.08E+04	0.001+00	1.268+06				
	21 Ag-110m	6.878+07	6.50R+07	3.95 K +07	0.00R+00	1.241+08	0.00R+00	1.838+10				
	22 Sb-124	0.008+00	0.008+00	0.00E+00	0.008+00	0.008+00	0.008+00	0.008+00				
	23 Sb-125	0.00E+00	0.008+00	0.008+00	0.00 8+00	0.001+00	0.00 2+00	0.008+00				
	24 Te-127m	6.34 E+0 7	2.258+07	7.548+06	1.51 E+0 7	2.571+08	0.008+00	1.58%+08				
	25 Te-129m	9.068+07	3.368+07	1.438+07	2.928+07	3.79 5 +08	0.008+00	3.40X+08				
	26 1-131	4.578+08	6.39B+08	3.43 8 +08	1.878+11	1.10E+09	0.00E+00	1.268+08				
	27 I-133	6.018+05	1.028+07	3.118+06	1.425+09	1.795+07	0.008+00	7.71E+06				
	28 Ca-134	6.768+09 2 PAR-00	1.598+10	1.018.00	0.008+00	0.065+09 0.15P:00	1.938+09	1.908.00				
	29 UB-138 30 Ca-137	3.005+08 9.05R+09	1.005+09	4.198+09	0.008+00 0.008+00	6.131+08 4.108+09	1.203+00 1.598+09	1.718+08				
								4 000 -0				
	31 Ba-140	4.128+07	5.058+04	2.658+05	0.00 X+0 0	1.718+04	3.398+04	0.358+07				
	ALI _1 00	g 000.00	2 208.00	0 012 01	0 002.00	0.000.00	0 002:00	1 010101				
	32 La-140 33 Cm-141	6.898+00 7.328+03	3.398+00 4 898+03	9.018-01 5.628+02	0.008+00 0.008+00	0.008+00 2.308+03	0.008+00 0.008+00	1.948+05 1.408+07				

All nuclides (except R-3) calculated per ODCM equation 2.3-24 H-3 calculated per ODCM equation 2.3-28

Beaver Valle	ey Po	wer	Stati	on				1/2-ODC-2.02
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		AT	ГАСНІ	MENT	J			
		Р	age 14	of 19				
	P&1	ORG/	AN DO	SE FA	CTOR	S		
						•		
			Table 2.3-	-15				
		R VALUES	FOR BEAVE	R VALLEY SIT	B			
		ísa set	er-mrem/vr	per uCi/sec	3			
D-44	- for Will	(31 -00			•			
ratuway Age Grou	p = Child							
Nuclide	Bone	Liver	T. Body	Thyroid	Lidney	Lung	ei-tri	
1 H-3	0.00 E+0 0	L.571+03	1.572+03	1.57 8 +03	1.57 E+ 03	1.578+03	1.578+03	
2 P-32 3 Cr-51	6.598+10 0.008+00	3.098+09	2.54E+09	0.00E+00	0.00E+00 1 28E+04	0.008+00 8 588+04	1.828+09	
4 Mn-54	0.00E+00	1.488+07	3.958+06	0.00E+00	4.16E+06	0.001+00	1.24B+07	
5 Fe-59	9.708+07	1.578+08	7.828+07	0.00 E+00	0.008+00	4.558+07	1.63 E+0 8	
6 Co-57	0.008+00	2.73E+06	5.52 X+0 8	0.008+00	0.00E+00	0.00E+00	2.24E+07	
/ CO-DB 8 Co-60	0.008+00	9.438+00 2.948+07	2.898+01 8.678+07	0.00E+00	0.008+00	0.008+00 0.008+00	0.004+07 1.63K+08	
9 Zn-65	2.95 E +09	7.878+09	4.89 B +09	0.00E+00	4.96E+09	0.00E+00	1.38E+09	
10 Bb-66	0.00 1 +00	7.40E+09	4.55E+09	0.00 E+0 0	0.00 8+00	0.00 E+ 00	4.768+08	
11 Sr-89	5.29 8 +09	0.00 0 +00	1.518+08	0.008+00	0.008+00	0.008+00	2.058+08	
12 Sr-90	7.558+10 2.088+04	0.008+00	1.918+10	0.008+00	0.008+00	0.008+00	1.02E+09	
10 1-91 14 Zr-95	3.008+04 3.008+03	6.808+00	5.888+02	0.008+00	9.45E+02	0.008+00	6.898+05	
15 Nb-95	2.618+05	1.028+05	7.26 E+ 04	0.002+00	9.54 8 +04	0.00E+00	1.882+08	
. 16 Kb-97	1.25 8-11	2.258-12	1.058-12	0.00 E +00	2.508-12	0.00E+00	6.94B-07	
17 70-99 18 Tr-99a	0.005+00 1 128+01	5.528+07 2 208+01	1.718+07 3 858+02	0.008+00 0.008+00	1.488708	0.008+00 1 128+01	5.728+07 1.258+04	
19 Ru-103	3.49 8 +03	0.008+00	1.348+03	0.008+00	8.78E+03	0.008+00	9.01B+04	
20 Ru-106	6.49B+04	0.008+00	8.108+03	0.00 8+00	8.76 2+04	0.001+00	1.018+06	
21 Ag-110m	1.49E+0B	1.01E+08	8.05E+07	0.008+00	1.87E+08	0.001+00	1.208+10	
22 50-124 23 Sh-125	0.008+00	0.008+00	0.008+00	0.008+00	0.00X+00 0.00X+00	0.001+00	0.005+00	
24 Te-127m	1.568+08	4.218+07	1.86E+07	3.748+07	4.46E+08	0.00E+00	1.278+08	
25 Te-129m	2.238+08	6.248+07	3.478+07	7.208+07	6.56E+08	0.008+00	2.728+08	
26 1-131	1.118+09	1.118+09	6.33 8 +08	3.68 8 +11	1.838+09	0.00E+00	9.928+07	
27 [-133 28 Co-134	1.468+07 1 568+10	1.818+07 2 568±10	6.838+06 5 /07+00	3.368+09 0.008±00	3.018+07 7 039±00	0.008+00 2 859±00	7.258+06 1.382+06	
20 cs-134 29 cs-136	8.588+08	2.368+09	1.538+09	0.00E+00	1.268+09	1.878+08	8.29E+07	
30 Cs-137	2.188+10	2.09E+10	3.08 8 +09	0.008+00	6.808+09	2.458+09	1.318+08	
31 Ba-140	9.94 E+0 7	8.71E+06	5.80 X+ 06	0.00 E+00	2.848+04	5.19 8+04	5.048+07	
32 La-140	1.65E+01	5.778+00	1.948+00	0.00E+00	0.00E+00	0.001+00	1.61E+05	
33 Ge-141 34 Ge-144	1.8VK+04 1.15 K +06	0.998+03 3.618+05	1.34x+04 6.158+04	0.00K+00 0.00K+00	3.948+03 2.008+05	0.00K+00 0.00K+00	1.128+07 9.418+07	
411 12	dan (arrest	0-3111		- MM	9 9 94			
HI DUCH H-3 calcu	lated per OD	n-5) calcul CM equation	atea per UI 1 2.3-28	vva equation	2.3-24			
14 Zr-95 15 Wb-95 16 Wb-97 17 Mo-99 18 Tc-99m 19 Ru-103 20 Ru-106 21 Ag-110m 22 Sb-124 23 Sb-125 24 Te-127m 25 Te-129m 26 I-131 27 I-133 28 Cs-134 29 Cs-136 30 Cs-137 31 Ba-140 32 La-140 33 Ce-141 34 Ce-144 All pueli K-3 calev	3.00E+03 2.61E+05 1.25E-11 0.00E+00 1.12E+01 3.49E+03 6.49E+04 1.49E+08 0.00E+00 0.00E+00 1.56E+08 2.23E+08 1.11E+09 1.45E+07 1.55E+10 8.58E+08 2.18E+10 9.94E+07 1.65E+01 1.60E+04 1.15E+06 des (srcept lated per CD	6.808+02 1.028+05 2.258-12 8.928+07 2.208+01 0.008+00 0.008+00 1.018+08 0.008+00 1.018+08 0.008+00 0.008+00 4.218+07 6.248+07 1.118+09 1.818+07 2.368+09 2.368+09 2.368+09 2.368+09 2.368+09 3.618+05 8.718+06 5.778+00 8.998+03 3.618+05 H-3) calcul	5.88E+02 7.25E+04 1.05E-12 1.71E+07 3.65E+02 1.34E+03 8.10E+03 8.05E+07 0.00E+00 0.00E+00 0.00E+00 0.00E+00 1.68E+07 3.47E+07 6.33E+08 5.40E+09 1.53E+09 3.08E+09 5.60E+04 1.34E+04 6.15E+04 ated per 01 2.3-28	0.008+00 0.008+00 0.008+00 0.008+00 0.008+00 0.008+00 0.008+00 0.008+00 0.008+00 0.008+00 0.008+00 0.008+00 0.008+07 3.688+11 3.368+09 0.008+07 0.008+0000000000	S.45E+02 S.54E+04 2.50E-12 1.45E+08 3.20E+02 8.76E+03 8.76E+04 1.87E+08 0.00E+00 0.00E+00 0.00E+00 4.46E+08 6.56E+08 1.83E+09 3.01E+07 7.93E+09 6.80E+09 2.84E+04 0.00E+00 3.94E+03 2.00E+05 2.3-24	0.008+00 0.008+00 0.008+00 1.128+01 0.008+00 0.008+00 0.008+00 0.008+00 0.008+00 0.008+00 0.008+00 0.008+00 0.008+00 2.858+09 5.198+04 0.008+00 0.008+00	6.898+05 1.888+08 6.948-07 5.728+07 1.258+04 9.018+04 1.018+06 1.208+10 0.008+00 1.278+08 2.728+08 9.928+07 7.288+06 1.388+08 5.048+07 1.618+05 1.128+07 9.418+07	

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Be	aver Valle	ey Po	wer	Statio	on		Pro	Procedure Number: 1/2-ODC-2 02				
Title:		· · · · · · · · · · · · · · · · · · ·	····· <u>·</u> · · · ·				Uni	it:	Level Of Use:			
								1/2	In-Field Reference			
ODCM GASEO	US EFFLUEN		Rev	vision:	Page Number:							
								2	103 of 128			
			AT	ГАСНІ	AENT .	J						
	•		Р	age 15	of 19							
		P&1	I ORGA	AN DO	SE FA	CTORS						
			•	Table 2.3-	16							
			R VALUES	FOR BEAVER	VALLEY SIT	B						
			(sg met	er-mrem/yr	per uCi/sec)						
	Pathway =	Cow Hilk										
	Age Group	= Infant										
	Huclide	Bone	Liver	1. Body	Thyroid	Lidney	Lung	GI-LLI				
	1 8-3	0 008+00	2 388+03	2 388+03	2 388+03	2 38F+03	2 38¥₊∩3	2 388+03				
	2 P-32	1.36E+11	7.998+09	5.27 E+09	0.002+00	0.00B+00	0.008+00	1.84E+09				
	3 Cr-51	0.00E+00	0.00E+00	1.348+05	B.75E+04	1.918+04	1.70E+05	3.91E+06				
	4 Nn-54	0.008+00	2.76 E+0 7	6.25E+08	0.00E+00	8.11 8+ 06	0.00E+00	1.01E+07				
	5 Fe-59	1.818+08	3.16 E+0 8	1.25 X+ 08	0.002+00	0.00 2+00	9.35 8 +07	1.518+08				
	6 Co-57	0.008+00	6.36 E+0 6	1.03E+07	0.008+00	0.00 E+00	0.00E+00	2.178+07				
	7 Co-58	0.00E+00	1.89E+07	4.70E+07	0.00E+00	0.00E+00	0.00E+00	4.70E+07				
	8 Co-60	0.00K+00	6.00E+07	1.42E+08	0.00E+00	0.008+00	0.008+00	1.438+08				
	9 Zn-85	3.978+09	1.368+10	6.27 E+09	0.00E+00	6.601+09	0.008+00	1.15B+10				
	10 Rb-86	0.00E+00	1.88 E +10	9.288+09	0.00 E+0 0	0.00 X +00	0.008+00	4.818+08				
	11 Sr-89	1.01 B +10	0.00 8+0 0	2.898+08	0.008+00	0.008+00	0.008+00	2.078+08				
	12 Sr-90	8.228+10	0.00E+00	2.09K+10	0.008+00	0.00 E +00	0.008+00	1.03E+09				
	13 Y-91	5.79E+04	0.00E+00	1.54E+03	0.00E+00	0.00E+00	0.00E+00	4.158+06				
	14 7-05	6 998.09	1 908-09	0 227.02	0.000.00	1 107:02	0 000.00	A 479105				

13	¥-91	5.79 8+04	0.00E+00	1.54 E+ 03	0.00E+00	0.00 8 +00	0.00 E+00	4.158+06
14	Zr-95	5.33 8+0 3	1.308+03	9.228+02	0.00E+00	1.408+03	0.00E+00	8.47E+05
15	ND-95	4.872+05	2.018+05	1.16 E+ 05	0.00E+00	1.448+05	0.00 B +00	1.698+08
16	N. 07	0 698 11	5 698 19	9 098-19	0.008.00	4 208 12	0 000.00	1 778 68
10	N- 00	2.0J8-11	1 778.00	2.036-14	0.008100	9.335-14	0.008.00	1.1/A-VO
	10-99	0.008400	1.116+00	J. 405+V/	0.008100	2.04L+UD	0.008+00	3.835+07
16	1c-99m	2.34 E +01	4.828+01	6.215+02	0.008+00	5.19K+UZ	2.528+01	1.408+04
19	Ru~103	7.08 8+0 3	0.008+00	2.36X+03	0.008+00	1.478+04	0.008+00	8.59 6+04
20	Ru-106	1.348+05	0.002+00	1.678+04	0.008+00	1.588+05	0.008+00	1.018+06
21	Ae-110m	2.758+08	2.01 E+0 8	1.338+08	0.008+00	2.888+08	0.008+00	1.04R+10
22	Sb-124	0.008+00	0.008+00	0.008+00	0.008+00	0.008+00	0.00R+00	0.00R+00
23	Sb-125	0.00R+00	0.008+00	0.008+00	0.008+00	0.008+00	0.008+00	0.008+00
24	Te-127a	3.16R+08	1 05R+08	3. A3R+07	9.14R+07	7 798+08	0.008+00	1 288+08
25	Te-129m	4.588+08	1.57E+08	7.062+07	1.768+08	1.158+09	0.008+00	2.74E+08
26	1-131	2.318+09	2.728+09	1.208+09	8.95 K +11	3.18 8 +09	0.008+00	9.728+07
27	I-133	3.08E+07	4.498+07	1.31 E+ 07	8.17 5 +09	5.28K+07	0.00E+00	7.60E+06
26	Ca-134	2.518+10	4.698+10	4.73E+09	0.002+00	1.218+10	4.958+09	1.27E+08
29	Cs-136	1.688+09	4.938+09	1.848+09	0.008+00	1.978+09	4.028+08	7.498+07
30	Cs-137	3.482+10	4.07B+10	2189 8+0 9	0.002+00	1.098+10	4.43E+09	1.278+08
21	Ra-140	2 058408	2 058405	1 058+07	0 008-00	A 868104	1 268405	5 028487
11 19	La 140	2.035700	1 268-01	2 602100	0.008/00	1.008101	1, LUBTUJ	1 602.05
22	Da-14V	0.438101 7 670.04	1.005101	0.006100	0.008100	0.002+00	0.000100	1.005+00
ы 	ve-141	J. 3/8404	4.108+04	6.0/AtV3	0.008+00	0.1ZE+U3	0.008+00	1.138+07
54	Ce-144	1.651+06	6.758405	9.258404	0.008+00	2.738+05	0.008400	9.478+07

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All nuclides (except H-3) calculated per ODCM equation 2.3-24 H-3 calculated per ODCM equation 2.3-28

Beave	er Valle	y Po	wer	Statio	on		Pro		1/2-ODC-2.02
Title:							Un	it: 1/2	Level Of Use: In-Field Reference
ODCM: GASEOUS	EFFLUEN	18					Ke	_2	104 of 128
			ATT	FACHN	ÆNT J	Ţ.			
		ד.9 ת		age 16	of 19	າກດາມເ	1		
		P&I	OKGA	AN DO	SE FAG	LIOKS)		
				Table 2.3-	17				
			R VALUES	FOR BRAVER	VALLEY SIT	R			
			ísa net	er-sres/vr	ner uCi/sec	•			
	Dathwar -	Goat Will	foð men		F21 801/060	,			
	Age Group	= Adult							
	Muclide	Bone	Liver	T. Body	Thyroid	Kidney	Lung	GI-LLI	
	1 H-3	0.00E+00	1.56 E+03	1.56E+03	1.56 X+03	1.562+03	1.56E+03	1.568+03	
	2 F-32 3 Cr-51	0.008+00	0.008+09	0.728+08 2.858+03	1.70E+03	0.001+00 8.28E+02	0.008+00 3.78E+03	1.908+09 7.178+05	
	4 Mn-54 5 Fe-59	0.008+00 3.128+05	7.148+05 7.328+05	1.36 E+05 2.81 E+05	0.00E+00 0.00E+00	2.128+05 0.008+00	0.00E+00 2.05E+05	2.19 E+05 2.44 X+0 5	
	6 Pa-57	0.008.00	1 007+05	1 828-05	0.000.000	0 008+00	0 008+00	2 778108	
	7 Co-58	0.008+00	4.40 B +05	9.86E+05	0.008+00	0.008+00	0.00E+00	8.91K+06	
	8 Co-60 9 7a-65	0.008+00	1.348+06	2.968+08	0.002+00	0.008+00 2.508+08	0.00E+00	2.528+07 2.368+08	1
	10 Rb-88	D.008+00	2.638+08	1.228+08	0.00 R +00	0.008+00	0,008+00	5.188+07	
	11 Sr-89	2.43 8+0 9	0.008+00	6.99 8 +07	0.00 R+ 00	0.008+00	0.008+00	3.91 8 +08	
	12 Sr-90 13 Y-91	6.648+10 8 148+07	0.00E+00 0.00E+00	1.63E+10 2 18E+01	0.008+00 0.008+00	0.008+00	0.003+00	1.928+09	
	14 Zr-95	8.87 E +01	2.85 E +01	1.93 E +01	0.00 R+00	4.478+01	0.008+00	9.028+04	
	15 Nb-95	0.13 E +03	4.52 8 +03	2.43 8 +03	0.00 R+00	4.478+03	0.002+00	2.748+07	
	16 ND-97 17 No-99	3.388-13 0.008+00	8.548-14 2.538+06	3.128-14 4.818+05	0.008+00 0.008+00	9.968-14 5.728+06	0.008+00 0.008+00	3.158-10 5.868+06	
	18 Tc~99m	3.39E-01	9.59E-01	1.228+01	0.002+00	1.468+01	4.70E-01	5.67E+02	
	19 Ru-103 20 Ru-106	9.95E+01 1.72E+03	0.008+00 0.008+00	4.298+01 2.188+02	0.008+00 0.008+00	3.80 8+0 2 3.328+03	0.008+00 0.008+00	1.168+04 1.118+05	
	21 Ag-110m	4.998+06	4.61 8 +06	2.74 E +06	0.00 8+00	9.07 8 +06	0.008+00	1.888+09	
	22 Sb-124	0.00E+00	0.008+00	0.008+00	0.00R+00	0.001+00	0.008+00	0.00E+00	
	23 50-125 24 Te-127m	0.008+00 4.138+06	0.008400 1.488406	0.008+00 5.038+05	0.00k+00 1.05k+06	0.008+00 1.688+07	0.008+00 0.008+00	0.00%+00 1.38%+07	
	25 Te-129m	5.948+06	2.228+06	9.418+05	2.048+06	2. 488 +07	0.00 8 +00	2.99 8 +07	
	26 I-131	3.02E+08	4.328+08	2.488+08	1.42B+11	7.408+08	0.00E+00	1.148+08	
	27 1-133 28 Cs-134	3_858+06 4.678+08	0.078+06 1:118+09	2.038+06 9.098+08	0.008+09	1.208+07 3.608+08	0.008+00 1.198+08	0.178+00 1.958+07	
	29 Cs-136	6.70E+08	2:85E+09	1.908+09	0.00E+00	1.478+09	2.028+08	3.018+08	
	JU 18-13/	1.308410	2.035+10	1.045+10	v.vv5+90	D. JOI+UJ	4.018409	J. 301400	
	31 Ba-140 32 La-140	2.74E+06 4.60R-01	3.448+03 2.328-01	1.798+05 6.138-02	0.00K+00 0.00R+00	1.17E+03 0.00R+00	1.978+03 0.008+00	5.648+06 1.708+04	
	33 Ce-141	4.79B+02	3.24E+02	3.688+01	0.008+00	1.51E+02	0.00E+00	1.248+06	
	34 Ce-144	3.058+04	1.278+04	1.648+03	0.002+00	7.558+03	0.008+00	1.038+07	
	Ali nuclid H-3 calcul	ies (except lated per OI	H-3) calcul CN equation	lated per OI 1 2.3-28	NA equation	2.3-24			

Beav	ver Valle	ey Po	wer	Statio	on		Proc	eaure Nun 1	/2-ODC-2.02
Title:				· ·			Unit		Level Of Use:
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			AT	ΓACHN	/ENT J				
			P	age 17	of 19				
		P&.	I ORGA	AN DO	SE FAC	TORS			
i .									i.
							,		
				Table 2.3-	18				
			R VALORS	FOR BRAVER	VALLEY SIT	B			
			(sq met	er-mrem/yr	per uCi/sec)			
	Pathway = Age Group	Goat Hilk = Teen							
	Huclide	Bone	Liver	T. Body	Thyroid	Lidney	Lung	GI-LLI	
	1 H-3	0.00 8+ 00	2.03 E+0 3	2.03 E+0 3	2.03 E+0 3	2.03 E +03	2.03E+03	2.03 E +03	
	2 P-32 3 Cr-51	3.218+10 0.008+00	1.99 8+09 0.00 8+ 00	1.24X+09 4.98X+03	0.00 E+00 2.77 E+0 3	0.008+00 1.098+03	0.008+00 7.118+03	2.70E+09 8.37E+05	
	4 Mn-54	0.008+00	1.198+06	2.368+05	0.008+00	3.55E+05	0.008+00	2.44E+06	
	J 12-JJ	J. 11570J	1.215100	1.JUE/UJ	0.008100	0.001.00	4.005700	0.002100	
	6 Co-57 7 Co-58	0.008+00 0.008+00	1.928+05 7.408+05	3.218+05 1.718+06	0.008+00 0.008+00	0.008+00 0.008+00	0.008+00	3.57K+05 1.02K+07	
	8 Co-60	0.00E+00	2.278+08	5.11E+08	0.00 E+00	0.008+00	0.008+00	2.968+07	
	10 Bb-86	0.0011+00	4.798+08	2.25E+08	0.002+00	0.008+00	0.008+00	7.09B+07	
	11 Sr-89	4.49B+09	0.00 8+0 0	1.29 E +08	0.00 E +00	0.008+00	0.008+00	5.35 8 +08	
	12 Sr-90 13 Y-91	9.398+10 1.508+03	0.008+00 0.008+00	2.32E+10 4.01E+01	0.00E+00 0.00E+00	0.00X+00 0.00X+00	0.008+00 0.008+00	2.648+09 6.148+05	
	14 Zr-95	1.558+02	4.90E+01	3.37E+01	0.00E+00	7.198+01	0.008+00	1.138+05	
	15 MD-95	1.398+04	7.69X+03	4.238403	0,008+00	7.458403	0.008400	3.298+07	
	16 Xb-97 17 Mo-99	6.158-13 0.008+00	1.538-13 4.568+06	5.578-14 8.708+05	0.008+00 0.008+00	1.798-13 1.048+07	0.008+00 0.008+00	3.658-09 8.178+06	
	18 Tc-99m	5.88K-01	1.641+00	2.138+01	0.00E+00	2.45 8+0 1	9.11 E -01	1.088+03	
	19 Ru-103 20 Ru-106	1.778+02 2. 448 +03	U.OOX+00 0.00X+00	7.56K+01 3.96K+02	0.00 6+00	5.248+02 6.108+03	0.00 8+00 0.00 8+00	1.488+04 1.528+05	
	21 Ap-110=	8.24R+06	7.80R+08	4.75R+06	0.008+00	1.49R+07	0.008+00	2,198+09	
	22 Sb-124	0.00B+00	0.0 08+0 0	0.00 1 +00	0.00 8+0 0	0.008+00	0.008+00	0.008+00	
	23 Sb-125 24 Te-127=	0.008+00 7 618+06	0.00 2+00 2 702+08	0.00 8+00 9.05 8+ 05	0.00 E+00 1 84 F+0 8	0.008+00 3 088+07	0.008+00 0.008+00	0.008+00 1 908+07	
	25 Te-129m	1.098+07	4.038+06	1.721+06	3.51E+08	4.558+07	0.008+00	4.088+07	
	26 1-131	5.488+08	7.678+08	4.128+08	2.24 B +11	1.328+09	0.00E+00	1.528+08	
	27 I-133 28 Ce-134	7.218+06 8.118+08	1.228+07 1.918+09	3.73 E+06 8.86 E+ 08	1.71 K+09 0 00 R+0 0	2.158+07 6 078+08	0.00K+00 2.32R+08	9.26E+06 2 38E+07	
	29 Ca-136	1.148+09	4.498+09	3.02 E+0 9	0.00 E+ 00	2.44B+09	3.85E+08	3.61E+08	
	30 Ca-137	2.718+10	3.61 E +10	1.268+10	0.008+00	1.238+10	4.778+09	5.148+08	•
	31 Ba-140	4.948+08 8.278-01	6.068+03	3.188+05	0.008+00 0.008+00	2.058+03	4.078+03	7.628+06	
	33 Ce-141	8.79B+02	1.008-01 5.878+02	6.748+01	0.00 E+0 0	2.76 E+0 2	0.008+00	2.008+04 1.688+06	

Bea	ver Valle	y Po	wer	Statio	on		Pro	ocedure Nur 1	nber: /2 -0DC- 2 02
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			ATT	ſACHN	AENT.	Γ			
			\mathbf{P}	age 18	of 19				
		P&I	ORG/	AN DO	SE FA	CTORS	5		
									,
				Table 2.3-	19				
			R VALUES	FOR BEAVER	VALLEY SIT	B			
			1		non net las-				
			(sq met)	er~mrem/Jr	per DU1/Bec	,			x
	Pathway =	Goat Hilk = Ch414							
	nge ordup	- 40110			`				
	Nuclide	Bone	Liver	T. Body	Thyroid	Lidney	Lung	GI-LLI	
	1 H-3	0.008+00	3.208+03	3.20E+03	3.208+03	3.208+03	3.20 E +03	3.20 8+ 03	
	2 P-32 3 C=-51	7.91E+10	3.70E+09	3.058+09	0.008+00 5 848+03	0.00E+00	0.00E+00	2.198+09 5 398+05	
	4 Hn-54	0.00E+00	1.78E+06	4.74B+05	0.00 8+0 0	4.998+05	0.00E+00	1.49E+06	
	5 Fe-59	1.268+06	2.04 B +06	1.028+06	0.00 E+00	0.00E+00	5.918+05	2.12E+06	
	6 Co-57	0.00E+00	3.27 8 +05	6.63E+05	0.00E+00	0.00E+00	0.00E+00	2.688+06	
	7 Co-58 8 Co-60	0.008+00 0.008+00	1.138+06 3.538+06	3.46E+06 1.04E+07	0.00X+00 0.00X+00	0.008+00 0.008+00	0.00E+00 0 00E+00	6.608+06 1.958+07	
	9 Zn-85	3,54E+0B	9.448+08	5.87 E+08	0.00 8+0 0	5.95 E+0 8	0.00E+00	1.662+08	
	10 Rb-86	0.00 E+00	8.651+08	5.46 X +08	0.008+00	0.008+00	0.00 6+00	5.718+07	
	11 Sr-89	1.11 E+10	0.00 E +00	3.172+08	0.008+00	0.002+00	0.00E+00	4.30E+08	
	12 Sr~90 13 Y-91	1.59K+11 3.70K+03	0.008+00 0.008+00	4.02K+10 9.89E+01	0.00K+00 0.00 K+00	0.00X+00 0.00X+00	0.00E+00 0.00E+00	2.14 6 +09 4.93 8 +05	
	14 Zr-95	3.808+02	7.928+01	7.05E+01	0.008+00	1.138+02	0.008+00	8.27E+04	
	15 Mb-95	3.138+04	1.228+04	8.718+03	0-008+00	1.148+04	0.008+00	2.258+07	
	16 Rb-97	1.49B-12	2.708-13	1.26B-13	0.008+00	2.998-13	0.008+00	8.33E-08	
	17 Ho-99 18 Tc-99m	0.008+00 1.358+00	8.308+06 2.658+00	2.058+06 4.398+01	0.00K+00 0.00K+00	1.778+07 3.848+01	0.008+00 1.348+00	6.878+05 1.518+03	
	19 Ru-103	4.188+02	0.00B+00	1.61B+02	0.00E+00	1.05B+03	0.00B+00	1.08E+04	
	20 Ru-105	7.791+03	0.00 K+00	9.728402	0.00 %+00	1.038+04	0.008400	1.218405	
	21 Ag-110m	1.79 E+ 07	1.218+07	9.658+06	0_008+00	2.258+07	0.008+00	1.448+09	
	22 50-124 23 Sb-125	V.UUE+UU 0.00E+00	0,008+00 0,008+00	0.001+00 0.002+00	0.008+00 0.008+00	0.008+00	0.008+00 0.008+00	0.008+00 0.008+00	
	24 Te-127m	1.885+07	5.05 E+06	2.23E+06	4.48E+06	5.35B+07	0.008+00	1.528+07	
	25 Te-129#	2.68 8 +07	7. 488+0 6	4.158+08	8.64 8 +06	7.871+07	0.00 8 +00	3.278+07	
	26 1-131	1.338+09	1.348+09	7.60E+08	4.428+11	2.191+09	0.00E+00	1.198+08	
	27 I-133 28 Cm-134	1.758+07	2.178+07 3.078+00	8.208+06 6 /88-09	4.038+09 0.008+00	3.518+07 9.528+09	0.008+00 3 #28+00	8.738+06 1 669±07	
•	20 08-134 29 Ca-136	2.588+09	3.018+09 7.088+09	0.408+00 4.588+09	0.008+00	3.025+00 3.778+09	5.62X+08	2.498+08	
	30 Cs-137	6.54 R +10	6.26R+10	9.248+09	0.00E+00	2.04E+10	7.348+09	3.928+08	
	31 Ba-140	1.198+07	1.05 R+ 08	6.96R+05	0.00R+00	3.40R+03	6.23R+03	6.04R+06	
	32 La-140	1.988+00	6.928-01	2.33K-01	0.008+00	0.00 E+ 00	0.008+00	1.93 E+04	
	33 Ce-141	2.16E+03	1.088+03	1.608+03	0.008+00	4.73E+02	0.00E+00	1.358+06	
	34 Ce-144	1.385+05	4.338+04	7.378+03	0.008+00	2.408+04	0.008+00	1.138+07	
	All nuclide	es (except	H-3) calcul	ated per OD	CH equation	2.3-24			
	H-3 calcula	ated per OD	CH equation	2.3-28					

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Beave	er Valle	v Po	wer S	Static)n		Pro	cedure Nur 1	$\frac{1}{2}$ ODC 2 02
Title		<u> </u>					I Ini	1:	Level Of Use
THC.								1/2	In-Field Reference
ODCM: GASEOUS	EFFLUEN	TS					Rev	vision: 2	Page Number: 107 of 128
			ATT	ACHN	1ENT J		I		107 01 120
			Pa	age 19	of 19				
		P&I	ORGA	N DO	SE FAC	TORS			
1									,
			•						
				Table 2.3-	20				
			· R VALUES	FOR BEAVER	VALLEY SIT	ß			
			(sg met	er-mren/yr	per uCi/sec)			•
	Pathway =	Goat Hilk							
	Age Group) = Infant							
	Nuclide	Bone	Liver	T. Body	Thyroid	Kidney	Lung	GI-LLI	
	1 H-3	0.00E+00	4.868+03	4.868+03	4.86 E +03	4.86E+03	4.862+03	4.865+03	
	2 P-32 3 Cr-51	1.638+11 0.008+00	9.598+09 0.008+00	6.32K+09 1.61K+04	0.001+00 1.051+04	0.008+00 2.298+03	0.00X+00 2.04X+04	2.21K+09 4.69K+05	
	4 Mn-54	0.00E+00	3.31X+06	7.50E+05	0.00E+00	7.33 8+0 5	0.00B+00	1.21E+06	
	5 Fe-59	2.358+06	4.118+08	1.621+08	0.008+00	0.008+00	1.218+06	1.968+06	
	6 Co-57	0.008+00	7.648+05	1.241+06	0.008+00	0.008+00	0.00E+00	2.60 E+0 8	
	7 Co-58 8 Co-60	0.008+00	2.265+06 7.208+06	5.541+05 1.708+07	0.00K+00 0.00R+00	0.008+00 0.008+00	0.00X+00 0.00X+00	5.648+05 1.718+07	
	9 Zn-65	4.768+08	1.632+09	7.53 2 +08	0.008+00	7.92 E+0 8	0.00E+00	1.38 E+0 9	
	10 Bb-86	0.008+00	2.258+09	1.112+09	0.00E+00	0.008+00	0.008+00	5.778+07	
	11 Sr-89	2.118+10	0.00 8 +00	6.08R+08	0.00 x+00	0.00 E +00	0.00E+00	4.348+08	
	12 Sr-90 13 Y-91	1.738+11	0.008+00 0.008+00	4.398+10 1.858+02	0.008+00	0.008+00	0.00K+00 0.00K+00	2.16E+09 4 98E+05	
	14 Zr-95	6.40E+02	1.56 E +02	1.118+02	0.008+00	1.681+02	0.00E+00	7.778+04	
	15 Nb-95	5.848+04	2. 4 1 B +04	1.398+04	0.008+00	1.728+04	0.00 E+0 0	2.038+07	
	16 Nb-97	3.16B-12	6.74B-13	2.43 E-13	0.008+00	5.27 E -13	0.00 E +00	2.138-07	
	17 No-99	0.00E+00 2.81F+00	2.128+07 5.708+00	4.148+06 7 ARE-01	0.008+00 0.008+00	3.178+07 6 238+01	0.008+00 3.038+00	5.99 X+06 1 68¥±03	
	19 Ru-103	8.47B+02	0.00 X+ 00	2.831+02	0.008+00	1.768+03	0.008+00	1.038+04	
	20 Ru-106	1.608+04	0.00E+00	2.001+03	0.00B+00	1.90%+04	0.00 E+0 0	1.228+05	
	21 Ag-110m	3.30E+07	2.41 E +07	1.801+07	0.00 8+00	3. 458 +07	0.00 E +00	1.25 K +09	
	22 Sb-124	0.00E+00	0.00E+00	0.003+00	0.00E+00	0.00E+00	0.008+00	0.00E+00	
	23 30-123 24 Te-127m	3.80K+00	0.001+00 1.261+07	4.59E+06	0.008+00 1.108+07	9.35K+07	0.008+00 0.008+00	1.53R+07	
	25 Te-129m	5.50%+07	1.891+07	8.47B+06	2.118+07	1.388+08	0.00E+00	3.28E+07	
	26 I-131	2.778+09	3.27 8+ 09	1. 448+ 09	1.078+12	3.828+09	0.00 E+ 00	1.17 E +08	
	27 1-133	3.70E+07	5.39 8+ 07	1.588+07	9.80 1 +09	6.34E+07	0.00 E+0 0	9.12 E+0 6	
	28 Ca-134	3.028+09	5.628+09	5.688+08 5.592.00	0.008+00	1.458+09 5.008-00	5.938+08 1.218-00	1.53B+07 2.26#4A9	
	30 CB-137	1.04 E +11	1.221+11	8.66 E +09	0.008+00	3.28 E +10	1.33E+10	3.822+08	
	31 Ba-140	2.45R+07	2.45 X +04	1.268+06	0.008+00	5.838+03	1.51R+04	6.03R+06	
	32 La-140	4.14R+00	1.631+00	4.198-01	0.00 E+00	0.00R+00	0.00E+00	1.92B+04	

.All nuclides (except H-3) calculated per ODCM equation 2.3-24 H-3 calculated per ODCM equation 2.3-28 $\,$

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		С	PV-1/2 CONTINUOU	DEPOSITIC	ON PARAMI ES >500 HRS (meters ⁻²)	ETERS (D/Q S/YR OR >1:) FOR 50 HRS/QTR				CONT	M: GASEOUS		Веаче
SECTOR	0.0 - 0.5	05-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	INU	EFFL		T V
			1,0 - 1,5		2.0 - 2.5	2.5 - 5.0		J.J - 4.0	4.0 - 4.5	4.5 - 5.0	nc	ΗÚ		aı
N	6.00E-10	8.60E-09	3.14E-09	1.76E-09	8.12E-10	5.70E-10	4.24E-10	3.29E-10	2.63E-10	2.15E-10	S R	ΓN		5
INNE NF	0.00E-10 1.03E-00	5.64E-09 1.57E-09	1.98E-09	2.55E-09	1.33E-09	1.07E-09	6.75E-10	5.23E-10 6.13E-10	4.56E-10	5.74E-10	EL	S		\leq
INE	1.05E-09	1.5712-09	1.526-09	5.02E-09	2.03E-09	1.046-09	1.23E-09	0.15E-10	7.65E-10	0.42E-10	ÆА			07
ENE	1.13E-09	1.55E-09	3.69E-09	3.27E-09	2.31E-09	1.29E-09	1.21E-09	6.78E-10	6.72E-10	3.89E-10	SE			X
E	1.35E-09	1.28E-08	4.09E-09	3.12E-09	1.91E-09	1.36E-09	1.01E-09	7.83E-10	4.15E-10	5.10E-10	DE			H
ESE	9.82E-10	7.85E-09	4.40E-09	2.46E-09	1.47E-09	1.03E-09	5.65E-10	5.05E-10	3.25E-10	3.00E-10	FAC Pag EPO			2
SE	2 76E-09	641E-09	3 52F-09	1 97F-09	1 18F-09	8 27 F- 10	5 68E-10	4 40F-10	2 93F-10	2 43E-10	HIN SIT			
SSE	2.22E-09	4.66E-09	3.01E-09	1.68E-09	1.02E-09	7.14E-10	4.25E-10	3.29E-10	2.19E-10	1.80E-10	IO of (Ξ
S	3.00E-09	4.81E-09	3.76E-09	2.10E-09	1.36E-09	9.52E-10	5.12E-10	3.96E-10	2.68E-10	2.20E-10	7 VT			·
SSW	1.44E-08	2.89E-09	7.83E-10	8.84E-10	5.70E-10	4.00E-10	2.55E-10	1.98E-10	1.84E-10	1.51E-10	YA A			
SW	1.89E-08	5.55E-09	1.55E-09	8.71E-10	2.61E-10	3.94E-10	1.57E-10	2.50E-10	2.54E-10	2.08E-10	RAN			
wsw	1 57E-09	6 63F-09	136E-00	1.045.00	5.44E-10	2 30E-10	3 84E 10	2 085 10	2 175 10	1 795 10	ÆT		1	
W	3.78E-10	2.95E-09	1.84E-09	1.04E-09	6.63E-10	2.59E-10 4 66E-10	1.37E-10	2.98E-10	1.12E-10	1.76E-10 1.75E-10	ER		~	<u> </u>
WNW	4.54E-10	4.13E-10	3.09E-10	4.71E-10	7.35E-10	5.16E-10	1.93E-10	1.10E-10	1.12E-10	1.80E-10	S.	levi:	Jnit:	
NW	4.52E-10	4.09E-10	2.86E-10	1.18E-09	7.04E-10	4.94E-10	3.37E-10	2.10E-10	2.09E-10	1.71E-10	(0	2 2	5	l
NNW	3.40E-10	2.05E-09	1.63E-09	9.12E-10	5.86E-10	4.13E-10	2.79E-10	2.16E-10	1.73E-10	1.42E-10	5 M			<u> </u>
,											ILE	Page	Levé	12-0
											(S	, Nun	l Of	D
												8 g	Use: ield	4
												сf,	Re	02
												128	fere	
												~	ince	l

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Title: ODCM: **TABLE 2.3-22** CV-1 AND CV-2 DEPOSITION PARAMETERS (D/Q) FOR CONTINUOUS RELEASES >500 HRS/YR OR >150 HRS/QTR GASEOUS EFFLUENTS (meters⁻²) Beaver CONTINUOUS RELEASE DEPOSITION PARAMETERS (0-5 MILES) DISTANCES TO THE CONTROL LOCATIONS, IN MILES Valley 4.0 - 4.5 4.5 - 5.0 3.5 - 4.0 SECTOR 0.0 - 0.5 0.5 - 1.0 1.0 - 1.5 1.5 - 2.0 2.0 - 2.5 2.5 - 3.0 3.0 - 3.5 2.91E-10 2.38E-10 7.57E-10 5.16E-10 4.00E-10 N. 4.46E-08 7.73E-09 3.24E-09 1.81E-09 1.08E-09 8.54E-10 6.35E-10 4.92E-10 3.94E-10 3.22E-10 1.22E-09 NNE 5.42E-08 9.39E-09 3.37E-09 1.89E-09 2.24E-09 1.57E-09 1.00E-09 7.77E-10 5.69E-10 4.66E-10 Power 1.27E-08 6.21E-09 3.47E-09 NE 7.32E-08 ENE 6.58E-10 5.39E-10 1.35E-08 6.51E-09 2.50E-09 1.76E-09 1.31E-09 1.01E-09 7.77E-08 3.64E-09 ATTACHMENT K Е 3.32E-10 3.79E-09 1.37E-09 9.59E-10 6.54E-10 5.06E-10 4.05E-10 6.08E-08 1.05E-08 2.12E-09 Station Page 2 of 7 1.87E-10 ESE 2.54E-09 1.42E-09 8.46E-10 5.94E-10 4.05E-10 3.14E-10 2.28E-10 3.23E-08 5.60E-09 2.55E-10 2.09E-10 SE 3.29E-08 5.70E-09 2.59E-09 1.45E-09 9.32E-10 6.55E-10 4.12E-10 3.19E-10 SSE 1.52E-10 2.84E-08 4.92E-09 2.06E-09 1.15E-09 6.29E-10 4.42E-10 2.99E-10 2.32E-10 1.85E-10 S 1.96E-10 3.67E-08 6.37E-09 2.26E-09 1.26E-09 8.14E-10 5.71E-10 3.86E-10 2.99E-10 2.39E-10 SSW 1.39E-10 2.61E-08 4.52E-09 1.60E-09 8.97E-10 5.78E-10 4.06E-10 3.02E-10 2.34E-10 1,70E-10 1.93E-10 SW 2.62E-09 5.62E-10 4.18E-10 3.24E-10 2.35E-10 3.06E-08 5.30E-09 1.47E-09 8.01E-10 WSW 7.97E-09 3.34E-09 8.45E-10 5.87E-10 4.55E-10 3.38E-10 2.77E-10 4.60E-08 1.87E-09 1.20E-09 W 3.15E-10 4.72E-09 2.64E-09 8.36E-10 6.22E-10 4.82E-10 3.85E-10 1/2 Revision: 2 6.49E-08 1.13E-08 1.19E-09 Unit: Procedure Number: 1/2-ODC-2. WNW 4.75E-10 1.55E-09 1.16E-09 8.96E-10 5.79E-10 9.25E-08 1.60E-08 6.43E-09 3.60E-09 2.21E-09 6.41E-10 NW 1.21E-09 7.83E-10 1.19E-07 2.07E-08 8.68E-09 4.86E-09 2.99E-09 2.10E-09 1.56E-09 2.94E-10 NNW 5.22E-08 3.79E-09 4.84E-10 3.59E-10 9.04E-09 2.12E-09 1.28E-09 9.00E-10 6.25E-10 Page Number: 109 of 128 Level Of Us In-Field Reference 22

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Beaver Valley Power Station	Procedure Number: $1/2-ODC-2.02$				
Title:	Unit: 1/2	Level Of Use: In-Field Reference			
ODCM: GASEOUS EFFLUENTS	Revision:	Page Number: 110 of 128			
ATTACHMENT K					
CONTINUOUS RELEASE DEPOSITION PARAMET	TERS (0-5 N	AILES)			
TABLE 2.3-23					

VV-1 AND VV-2 DEPOSITION PARAMETERS ($\overline{D/Q}$) FOR CONTINUOUS RELEASES >500 HRS/YR OR >150 HRS/QTR (meters⁻²)

Same as Table 2.3-22

	Procedure Nu	mber:
Beaver Valley Power Station		1/2-ODC-2.02
Title:	Unit:	Level Of Use:
	1/2 Revision	In-Field Reference
ODUM: GASEOUS EFFLUENTS	2	111 of 128
ATTACHMENT K		
Page 4 of 7		
CONTINUOUS RELEASE DEPOSITION PARAMETE	ERS (0-5 M	IILES)
TABLE 2 3-24		
TV-2 DEPOSITION PARAMETERS $(\overline{D/O})$) FOR	
CONTINUOUS RELEASES >500 HRS/YR OR >1	50 HRS/Q	TR
(meters ⁻²)		
Same as Table 2.3-22		
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1		

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Beaver Valley Power Station	Procedure Number: 1/2-ODC-2.02		
Title:	Unit:	Level Of Use:	
ODCM: GASEOUS EFFLUENTS	1/2 Revision:	Page Number:	
	2	112 of 128	
Page 5 of 7			
CONTINUOUS RELEASE DEPOSITION PARAM	IETERS (0-5 N	AILES)	
TABLE 2.3-25			
CD 2 DEDOCITION DAD AMETEDS			
CONTINUOUS RELEASES >500 HRS/YR OI	R > 150 HRS/O	TR	
(meters ⁻²)			
Same as Table 2 3-22			
Game as Table 2.5-22			

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Beaver Valley Power Station	Procedure Number: 1/2-ODC-2.02		
Title:	Unit: 1/2	Level Of Use: In-Field Reference	
ODCM: GASEOUS EFFLUENTS	Revision: 2	Page Number: 113 of 128	
ATTACHMENT K			

Page 6 of 7 CONTINUOUS RELEASE DEPOSITION PARAMETERS (0-5 MILES)

TABLE 2.3-26

DV-2 DEPOSITION PARAMETERS (D/Q) FOR CONTINUOUS RELEASES >500 HRS/YR OR >150 HRS/QTR (meters⁻²)

Same as Table 2.3-22

	Beaver Valley	Power St	ation		Procedure N	1/2-ODC-2	02
Title:					Unit:	Level Of Use:	Doforce
ODCM [.] GA	SEOUS FEFLIENTS				1/2 Revision:	Page Number:	Referenc
				17	2	114 0	of 128
	CONTINUOUS REI	ATTAC Pag LEASE DEPC	ge 7 of 7 SITION I	K PARAMET	ERS (0-5 N	AILES)	
		TAB	BLE 2.3-27	7			
	WV-2 DI CONTINUOUS	EPOSITION I RELEASES (n	PARAME >500 HRS neters ⁻²)	TERS (D/C S/YR OR >1) FOR 150 HRS/Q	OTR	
		Same as	s Table 2.3	3-22			
	• •						
					·		
				·			
				<i>₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩</i>			
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Beaver Valley Power Station				Pro	ocedure Number: 1/2 -(DDC-2.02
Title:	•	,		Ur	nit: Lev	el Of Use:
					1/2	In-Field Referen
ODCM: GASEC	DUS EFFLUENI	<u>S</u>		Ke	2 Page	115 of 128
		ATTAC	HMENT L			
		Page	:1 of 7			
CONTI	NUOUS RELEA	SE DEPOSITION	IPARAME	TERS (SPE	CIAL DIST.	ANCES)
		TABL	E 2.3-28			
				CONTINI		ACTC
PV-J	1/2 DEPUSTION	PARAMETERS	U/Q) FUR	PECIAL DI	OUS RELE	ASES
	/IDEN	TIFIED IN ATTA	CHMENT 1	E TABLE 2	2-3)	
	(IDEI)	(1E-9	meters ⁻²)	0 170000 2	.2.5)	
			,			
		INDIVIDUA	L RECEPT	ORS		
DOWNWIND	SITE	VEGETABLE	MILK	MILK	MEAT	
SECTOR	BOUNDARY	GARDEN	COW	GOAT	ANIMAI	_ RESIDEN
N	.600	2.340		.572	.707	2.510
NNE	.673	3.220		.524	2.920	3.220
NE	.766	1.280	.660	.111	.660	1.200
ENE	1.010	5.080		.702		1.760
Έ	1.370	4,420	.401	1.290	1.290	4,420
ESE	.984	6.390		2.340	6.390	6.180
SE	11.000	3.680	.466	.466	1.300	3.680
SSE	7.060	, 3.220	.423	.105	3.140	4.320
S	5 780	1 540	1 410		2 610	2 730
ŠSW	2.040	1.040	.578	.208	1.040	1.460
SW	1.610	1.120		.693	.979	1.120
WSW .	1.710	1.310	.370		1.190	1.310
W	377	659	138		518	659
WNW	.424	.746	.497	.029	.746	.746
NW	.447	.425		.070	.488	.422
NNW	.340	1.840		.043	.545	1.92

	eaver Valley	Power Sta	tion	Pr	ocedure Number: 1/2-OI	DC-2.02
l'itle:	<u></u>			U	nit: Level	Of Use:
		-			<u>1/2</u> Ir	I-Field Reference
ODCM: GASE	JUS EFFLUENT	S		R	2 Page I	116 of 128
	••••••••••••••••••••••••••••••••••••••	ATTAC	HMENT L			
		Page	2 of 7			
CONTI	NUOUS RELEAS	SE DEPOSITION	PARAME	TERS (SPE	CIAL DISTA	NCES)
	`	TABL	E 2.3-29	-		
CV-1 AN	D CV-2 DEPOST	TION PARAMET	TERS (D/Q)	FOR CON	TINUOUS RI	ELEASES
	>500 HRS/YR	OR >150 HRS/0	TR FOR S	PECIAL DI	STANCES	
	(IDENT	IFIED IN ATTA (1E-9	CHMENT I meters ⁻²)	E TABLE 2	.2-3)	
		INDIVIDUA	L RECEPT	ORS		
DOWNWIND	SITE	VEGETABLE	MILK	MILK	MEAT	
SECTOR	BOUNDARY	GARDEN	COW	GOAT	ANIMAL	RESIDENCE
N	25.40	2.05		.693	.847	2.19
NNE	18.80	2.02		.459	1.850	2.11
NE	63.40	29.30	.455	.078	.455	30.40
ENE	65.90	8.92		.661		32.20
E	38.00	3.90	.382	1.020	1.020	22.70
ESE	17.10	3.56		1.380	3.560	3.56
SE	13.80	3.03	.350	.350	1.100	3.03
SSE	10.50	2.65	.317	.094	2.570	3.68
S	10.60	1.05	.934		1.860	1.95
	5.59	1.26	.663	.266	1.260	4.42
ssw		•		1 220	1 000	.
SSW SW	3.94	2.21		1.320	1.920	2.21
SSW SW WSW	3.94 27.50	2.21 2.65	.596	1.320 	2.380	2.21 2.65
SSW SW WSW	3.94 27.50 31.60	2.21 2.65	 .596 .645		2.380	2.21 2.65 1.23
SSW SW WSW W	3.94 27.50 31.60 39.10	2.21 2.65 1.23 2.23	 .596 .645 1.490	 045	1.920 2.380 .960 2.230	2.21 2.65 1.23 2.23
SSW SW WSW W WNW NW	3.94 27.50 31.60 39.10 70.60	2.21 2.65 1.23 2.23 15.00	.596 .645 1.490	.045 .276	1.920 2.380 .960 2.230 1.990	2.21 2.65 1.23 2.23 15.60

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Beaver Valley Power Station	Procedure Nu	umber: 1/2-ODC-2.02
Title:	Unit:	Level Of Use:
	1/2	In-Field Reference
ODCM: GASEOUS EFFLUENTS	Revision:	Page Number:
	2	<u>117 of 128</u>
ATTACHMENT L		
Page 3 of 7		
CONTINUOUS RELEASE DEPOSITION PARAMETERS	(SPECIAL I	DISTANCES)
	(or bon in t	71017H (OLO)
TABLE 2 3-30		
VV_{-1} and VV_{-2} deposition parameters (D/O) for		US RELEASES
$\sqrt{\sqrt{1}}$ AND $\sqrt{\sqrt{2}}$ DEFOSITION FARMAGETERS (D/Q) FOR	U DISTAND	TEC CONCLUENCES
		LE3
(IDENTIFIED IN ATTACHMENT E TAB	LE 2.2-3)	
$(1E-9 \text{ meters}^2)$		
Same as Table 2.3-29		

Fitle: ODCM: GASEC CONTIR	DUS EFFLUENT	`S ATTAC		Ur	nit: Leve 1/2	l Of Use: [n-Field Reference
DDCM: GASEC	DUS EFFLUENT	S ATTAC		Re	1/2	in-rield Reference
DDCM: GASEC	OUS EFFLUENT	S ATTAC		I Ke	•••	37.3
CONTII	NUOUS RELEA	ATTAC			2 Page	118 of 128
CONTI	NUOUS RELEA		HMENT L	1		
CONTI	NUOUS RELEA	Page	e 4 of 7			
		SE DEPOSITION	VPARAME	TERS (SPE	CIAL DIST.	ANCES)
		TABL	Æ 2.3-31			
TV.	2 DEPOSTION	DARAMETERS		CONTINU	NIS BELEA	SES
1 4 -	>500 HRS/YR	OR > 150 HRS/(OTR FOR S	PECIAL DI	STANCES	.91.9
	(IDENI	TIFIED IN ATTA	CHMENT I	E TABLE 2.	2-3)	
	((1E-9	meters ⁻²)			
			LRECEPT	ORS		
	SITE	VEGETADIE				
SECTOR	BOUNDARY	GARDEN	COW	GOAT	ANIMAI	RESIDENC
N	20.20	2.05		602	Q17	2 100
	20.20	2.03		.093	.047 1.850	2.190
NE	54.20	2.02	455	078	455	30,400
ENE	57 50	8.92		.078		32,200
	57.50	0.92		.001		52.20,0
Е	38.10	3.90	.382	1.020	1.020	22.700
ESE	18.60	3.56		1.380	3.560	3.560
SE	19.00	3.03	.351	.351	1.100	3.030
SSE	13.30	2.65	.318	.094	2.570	3.690
S	11 30	10.40	934		1 860	1 950
ŠSW	6.44	1.26	.664	.266	1.260	4.430
ŚW	3.95	2.21		1.320	1.920	2.210
WSW	25.10	2.65	.597		2.380	2.650
XX7-15	28.40	1 23	646		061	1 220
WNW	30.90	2.23	1 490	045	2 230	2 230
NW	56.20	14 00	1.770	276	1 980	15 500
NNW	25 10	6 53		068	1 100	9 920
TITIA	J. 10	0.55		.000	1.100	2.720

Procedure N	lumber: 1/2 -ODC-2 .02
Unit: 1/2	Level Of Use: In-Field Reference
Revision: 2	Page Number: 119 of 128
PECIAL UOUS R DISTAN 2.2-3)	DISTANCES) ELEASES CES

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Beaver Valley Power Station		1/2-ODC-2.02		
Title:		Unit:	Level Of Use:	
		1/2	In-Field Reference	
ODCM: GASEOUS EFFLUENTS		Revision: 2	Page Number: 120 of 128	
ATTACHMENT	L			
Page 6 of 7				
CONTINUOUS RELEASE DEPOSITION PARAM	AETERS (S	PECIAL I	DISTANCES)	
TABLE 2.3-33				
		~ ~ ~ ~ ~ ~		
DV-2 DEPOSITION PARAMETERS (D/Q) FC	R CONTIN	IUOUS RI	ELEASES	
>>υυ μκδ/ ΥΚ ΟΚ >1>υ μκδ/QIΚ ΓΟΚ (Πρενιτιετεί τη Αττιλ συναεί)	TETADIE	D151AN(LE2	
(1120) III ATTACHIVEN (1170) (1170) (1170) (1170)	I L IADLE	2.2-3)		
Same as Table 2.3	-29			
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			. •	

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Beaver Valley Power Station	Procedure N	umber: 1/2-ODC-2 02
Title:	Unit: 1/2	Level Of Use: In-Field Refere
ODCM: GASEOUS EFFLUENTS	Revision: 2	Page Number: 121 of 128
ATTACHMENT L		
Page 7 of 7		
CONTINUOUS RELEASE DEPOSITION PARAMETE	RS (SPECIAL I	DISTANCES)
TABLE 2.3-34		
WV-2 DEPOSTION PARAMETERS (D/Q) FOR CO	ONTINUOUS R	ELEASES
(IDENTIFIED IN ATTACHMENT E T	ABLE 2.2-3)	
$(1E-9 \text{ meters}^{-2})$		
Same as Table 2.3-29		

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Beaver Valley Power Station					Procedure Number: $1/2 - ODC = 2 = 02$		
Title:					Unit:	Level	Of Use:
					1/2	In	-Field Reference
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		ATTAC	HMENT M				
		Page	e 1 of 3				
BAT	CH RELEASE I	DISPERSION PA	RAMETER	S (SPEC	IAL DIST	ANCE	ES)
	۰.			``			
		. • •• ·					
		TABI	LE 2.3-35				
6 5.1.4							
CV-1.	AND CV-2 DISP	PERSION PARA	METERS (X	(/Q) FOR	BATCH.	RELE.	ASES
	≥500 HRS/YR	$OR \ge 150 HRS/C$	QTR FOR SI	PECIAL	DISTANC	ES	
	(IDENT	IFIED IN ATTA	CHMENT E	E TABLE	2.2-3)		
		(se	ec/m ³)				
			T DECEDE	0.0.0			
		INDIVIDUA	L RECEPT	ORS			
DOWNWIND	SITE	VEGETABLE	MILK	MILK	. ME	EAT	
SECTOR*	BOUNDARY	GARDEN	COW	GOAT	ani Ani	MAL	RESIDENCE
N	8 21E-5	8 38E-6		3 725	6 131	F.6	8 82F 6
NNE	3.04E-5	0.58E-0 A 71E-6		1.40E	6 138	E-0 E-6	0.02E-0 4 87E 6
NE	1.59E-5	$2.21E_{-5}$	 6.05E-7	1 38E	-0 -1.30 7 6.05	E-0	4.07E-0 2.28E 5
	4.57E-5	5.25E 6	0.031-7	5 665	-7 0.05 7	L-7	2.28L-J
LINE	5.721-5	5.2512-0		J.00E	-, -	-	1.001.40
Е	2.93E-5	3.79E-6	5.15E-7	1.17E-	-6 1.17	E-6	1.78E-5
ESE	2.47E-5	5.61E-6		2.34E-	-6 5.61	E-6	5.61E-6
SE	2.14E-5	5.00E-6	8.13E-7	8.13E	7 2.03	E-6	5.00E-6
SSE	2.21E-5	6.31E-6	1.11E-6	3.92E	.7 6.13	E-6	8.49E-6
S	2.15E-5	3.03E-6	2.76E-6		4.93	E-6	5.14E-6
SSW	2.18E-5	6.58E-6	3.81E-6	1.82E-	6 6.58	E-6	1.78E-5
SW	1.82E-5	1.03E-5		6.67E-	6 9.12	E-6	1.03E-5
WSW	1.09E-4	1.29E-5	4.10E-6		1.19	E-5	1.29E-5
W	1.49E-4	1.05E-5	6.55E-6		8.77	E-6	1.05E-5
WNW	1.91E-4	1.72E-5	1.28E-5	1.23E-	6 1.72	E-5	1.72E-5
NW	3.08E-4	6.13E-5		3.80E-	6 1.36	E-5	6.36E-5
NNW	1.80E-4	3.54E-5		1.35E-	6 9.27	E-6	5.29E-5
*Measured relev	ant to center poir	nt between BV-1	and BV-2 C	ontainme	nt Buildin	gs	
Period of Record	l· 1976 - 1980						

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Beaver Valley Power Station				Pro	Procedure Number: 1/2 - ODC - 2.02		
itle:					it: Lev	vel Of Use: In-Field Reference	
DCM: GASEOUS EFFLUENTS				Re	vision: Pag	ge Number:	
	2 123 c						
		ATTAC	HMENT M				
			2 of 3				
BAI	I CH KELEASE I	DISPERSION PA	KAMETER	IS (SPECIA	L DIS I AN	CES)	
		TABI	E 2.3-36				
VV-1	AND VV-2 DISP	PERSION PARA	METERS (3		ATCH REI	FASES	
,,,,	>500 HRS/YR	OR >150 HRS/0	TR FOR SI	PECIAL DU	STANCES		
	(IDENT	TIFIED IN ATTA	CHMENT 1	E TABLE 2	2-3)		
		(se	ec/m^3)				
	<u>`</u>	INDIVIDUA	L RECEPT	ORS			
DOWNWIND	SITE	VEGETABLE	MILK	MILK	MEAT		
SECTOR*	BOUNDARY	GARDEN	COW	GOAT	ANIMAJ	L RESIDENCI	
Ν	9.75E-5	1.00E-5		4.21E-6	4.95E-6	1.06E-5	
NNE	3.78E-5	5.11E-6		1.43E-6	4.72E-6	5.30E-6	
NE	6.13E-5	2.70E-5	6.20E-7	1.40E-7	6.20E-7	2.81E-5	
ENE	4.83E-5	5.58E-6		5.71E-7		2.24E-5	
Е	3.66E-5	3.99E-6	5.25E-7	1.19E-6	1.19E-6	2.10E-5	
ESE	2.99E-5	6.13E-6		2.43E-6	6.13E-6	6.13E-6	
SE	2.55E-5	5.29E-6	8.24E-7	8.24E-7	2.13E-6	5.29E-6	
SSE	2.65E-5	6.72E-6	1.12E-6	3.95E-7	6.53E-6	9.22E-6	
S	2.52E-5	3.14E-6	2.83E-6		5.29E-6	5.53E-6	
SSW	2.60E-5	7.34E-6	4.15E-6	1.92E-6	7.34E-6	2.09E-5	
SW	2.13E-5	1.18E-5		7.41E-6	1.04E-5	1.18E-5	
WSW	1.34E-4	1.51E-5	4.46E-6		1.38E-5	1.51E-5	
W	1.77E-4	1.25E-5	7.40E-6		1.02E-5	1.25E-5	
WNW	2:33E-4	2.07E-5	1.49E-5	1.30E-6	2.07E-5	2.07E-5	
NW	3.32E-4	8.57E-5		4.24E-6	1.64E-5	8.85E-5	
N TN TX X Z	1005.4	1 60E 5		1 45E 6	1.005.5	675155	

Period of Record: 1976 - 1980

Beaver Valley Power Station				Pro	Procedure Number: 1/2-ODC-2, 02		
Title:				Uni	t: Level	Of Use:	
DDCM: GASEOUS EFFLUENTS					rision: Page	Number:	
					2	124 of 128	
		ATTACI	HMENT M				
		Page	e 3 of 3				
BA	ICH RELEASE I	DISPERSION PA	RAMETER	S (SPECIAL	_ DISTANC	ES)	
		TABI	E 2.3-37				
r			CDC (V/O) I			c	
r	$\sim 1/2$ DISPERS	OP > 150 UPS/(TD EOD GI		I KELEASE	3	
	ע געצעע הערק ערעשעוו	. ΟΚ 2130 ΠΚδ/(ΓΙΕΙΕΝ ΙΝΙ ΔΥΥΛ	CHMENT I	E TARI E 2 '	2-3)		
			c/m^3		2-37		
		(50	om j			· .	
		INDIVIDUA	L RECEPT	ORS			
DOWNWIND	SITE	VEGETABLE	MILK	MILK	MEAT		
SECTOR*	BOUNDARY	GARDEN	COW	GOAT	ANIMAL	RESIDENCE	
Ν	3.09E-9	3.30E-6		1.13E-6	1.34E-6	3.36E-6	
NNE	2.85E-9	2.68E-6		6.52E-7	2.47E-6	2.68E-6	
NE	2.02E-10	7.42E-9	5.44E-7	1.24E-7	5.44E-7	5.51E-9	
ENE	1.02E-9	3.21E-6		6.29E-7		1.67E-9	
E	2.15E-9	2.91E-6	4.96E-7	1.14E-6	1.14E-6	2.91E-6	
ESE	6.90E-9	4.97E-6		1.95E-6	4.97E-6	4.81E-6	
SE	2.91E-6	3.52E-6	6.02E-7	6.02E-7	1.43E-6	3.52E-6	
SSE	4.91E-6	3.56E-6	6.53E-7	2.18E-7	3.47E-6	4.71E-6	
S	2.41E-6	1 78E-6	1 65E-6		2.84E-6	2 96E-6	
SSW	4.83E-6	2.52E-6	1.50E-6	6.60E-7	2.52E-6	3.96E-6	
SW	4.82E-6	2.75E-6		1.78E-6	2.44E-6	2.75E-6	
WSW	5.77E-7	2.81E-6	8.79E-7		2.57E-6	2.81E-6	
W	2.88E-9	1.68E-6	4.89E-7	_ _'	1.37E-6	1.68E-6	
W/NIW/	3.40E-9	1.61 E- 6	1.13E-6	1.10E-7	1.61E-6	1.61E-6	
AA NTAA		2 217 9		2.025.7	1 07E 6	3 10E 8	
NW	1.34E-9	3.31E-8		2.03E-7	1.0712-0	J. IVL-0	

*Measured relevant to BV-1 natural draft cooling tower

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Period of Record: 1976 - 1980

ODCM: Title: **TABLE 2.3-38** PV-1/2 DISPERSION PARAMETERS (D/Q) FOR CONTINUOUS RELEASES ≥500 HRS/YR OR ≥150 HRS/OTR GASEOUS EFFLUENTS (sec/m^3) Beaver BATCH RELEASE DISPERSION PARAMETERS (0 - 5 MILES) DISTANCES TO THE CONTROL LOCATIONS, IN MILES Valley Power Station SECTOR 0.0 - 0.5 0.5 - 1.0 1.0 - 1.5 1.5 - 2.0 2.0 - 2.5 2.5 - 3.0 3.5 - 4.0 4.0 - 4.5 4.5 - 5.0 3.0 - 3.5 2.75E-15 1.07E-5 4.10E-6 1.13E-6 8.84E-7 7.13E-7 5.93E-7 5.06E-7 Ν 2.61E-6 1.51E-6 5.90E-17 5.39E-6 2.19E-6 8.05E-7 NNE 2.83E-6 1.36E-6 1.13E-6 6.51E-7 5.64E-7 4.81E-7 NE 4.45E-16 1.67E-8 7.39E-8 2.28E-6 1.19E-6 9.28E-7 6.76E-7 5.32E-7 1.72E-6 7.34E-7 ENE 1.92E-15 8.87E-8 2.60E-6 2.21E-6 1.66E-6 1.13E-6 9.25E-7 7.23E-7 6.06E-7 3.82E-7 ATTACHMENT N Е 1.84E-15 5.10E-6 2.77E-6 2.23E-6 1.44E-6 8.74E-7 4.82E-7 1.12E-6 6.92E-7 5.11E-7 Page 1 of ESE 2.96E-13 5.26E-6 3.48E-6 2.04E-6 1.34E-6 9.93E-7 6.70E-7 5.76E-7 4.37E-7 3.83E-7 SE 9.16E-8 3.13E-6 3.38E-6 1.99E-6 1.31E-6 9.58E-7 7.14E-7 5.74E-7 4.32E-7 3.68E-7 SSE 3.50E-8 4.86E-6 3.33E-6 1.95E-6 9.42E-7 6.55E-7 5.24E-7 1.29E-6 3.95E-7 3.32E-7 S 1.22E-7 4.12E-6 3.97E-6 2.34E-6 1.59E-6 1.17E-6 7.75E-7 6.24E-7 4.74E-7 4.00E-7 SSW 1.75E-5 2.84E-6 6.22E-6 2.18E-6 1.48E-6 1.08E-6 7.83E-7 4.77E-7 6.31E-7 5.62E-7 SW 2.08E-5 9.11E-6 3.47E-6 2.19E-6 8.19E-7 1.25E-6 1.11E-6 7.17E-7 6.89E-7 5.85E-7 WSW 8.56E-8 2.29E-6 9.35E-6 3.16E-6 1.46E-6 1.01E-6 9.06E-7 7.52E-7 5.99E-7 5.07E-7 Revision: 2 Unit: 1/2W 5.44E-17 4.52E-6 4.21E-6 2.49E-6 1.69E-6 1.25E-6 4.86E-7 7.68E-7 5.80E-7 5.48E-7 WNW 9.25E-18 1.44E-8 5.66E-8 1.92E-6 1.59E-6 1.17E-6 7.75E-7 4.61E-7 5.28E-7 4.89E-7 NW 2.61E-16 1.98E-8 8.37E-8 1.46E-6 2.24E-6 1.08E-6 8.09E-7 6.12E-7 5.42E-7 4.60E-7 /2-0DC-2 NNW 1.91E-15 3.91E-6 3.66E-6 8.03E-7 2.15E-6 1.40E-6 1.08E-6 6.48E-7 5.37E-7 4.56E-7 Level Of Use: In-Field Reference Page Number 25 of 128 .02

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Beaver Valley Power Station

Unit 1/2

1/2-ODC-2.03

ODCM: Radiological Environmental Monitoring Program

Document Owner Manager, Nuclear Environmental and Chemistry

Revision Number	1
Level Of Use	General Skill Reference
Safety Related Procedure	Yes
Effective Date	12/29/06

Beaver Valley Power Station						
Title	J Init.	Level Of Use				
ODCM Radiological Environmental Monitoring Program	1/2	General Skill Reference				
ODENI. Radiological Environmental Montoring Program	Revision:	Page Number:				
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TABLE OF CONTENTS						
1.0 PURPOSE						
2.0 SCOPE						
3.0 REFERENCES AND COMMITMENTS						
3.1 References.						
3.3 Commitments						
4.0 RECORDS AND FORMS						
4.1 Records		4				
4.2 Forms						
5.0 PRECAUTIONS AND LIMITATIONS		4				
6.0 ACCEPTANCE CRITERIA		4				
7.0 PREREQUISITES						
8.0 PROCEDURE		4				
8.1 REMP Overview		4				
8.2 Sampling and Analysis Program						
8.3 Crosscheck Program						
8.4 Land Use Census Program						
8.5 Direct Radiation Monitoring Program						
ATTACHMENT A EXPOSURE PATHWAY AND SAMPLING	REOUIREM	ENTS 8				
ATTACHMENT B LOCATION OF SAMPLING SITES		12				
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	Beaver Valley Power Station	Procedure N	umber: ' 1/2-ODC-2.03		
Title:		Unit:	Level Of Use:		
ODCM: R	adiological Environmental Monitoring Program	1/2	General Skill Refer		
		Revision:	Page Number: 3 of 23		
1.0 <u>P</u>	URPOSE				
1.1 Th	nis procedure provides the Radiological Environmental M quirements from the Radiological Branch Technical Pos	Monitoring Prog ition. ^(3.1.1)	gram (REMP)		
1.1.1	Prior to issuance of this procedure, these items were lo ODCM.	ocated in Section	on 3 of the old		
2.0 <u>S</u>	COPE				
2.1 Th	nis procedure is applicable to all station personnel that ar scribed and referenced in this procedure.	e qualified to p	erform activities as		
3.0 <u>R</u>	EFERENCES AND COMMITMENTS				
3.1 <u>R</u>	eferences				
3.1.1	Radiological Branch Technical Position, Revision 1, 1	1979.			
3.1.2	Regulatory Guide 1.109, Calculation of Annual Dose Reactor Effluents For the Purpose of Evaluating Comp Appendix I, Revision 1, 1977.	to Man From R pliance with 10	outine Releases of CFR Part 50,		
3.1.3	NUREG-1301, Offsite Dose Calculation Manual Guid Effluent Controls for Pressurized Water Reactors (Ger No. 1).	lance; Standard neric Letter 89-	Radiological 01, Supplement		
3.1.4	Regulatory Guide 1.111, Methods For Estimating Atmospheric Transport and Dispersion of Gaseous Effluents in Routine Releases From Light-Water-Cooled Reactors, Revision 1, July 1977.				
3.1.5	1/2-ADM-1640, Control of the Offsite Dose Calculation	on Manual			
3.1.6	1/2-ADM-0100, Procedure Writers Guide	1/2-ADM-0100, Procedure Writers Guide			
3.1.7	1/2-ADM-0101, Review and Approval of Documents				
3.1.8	CR04-00149, Radiation Protection Performance Comr required obtaining GPS satellite data for use in the RE	nittee Actions I MP.	tems CA-12		
3.1.9	CR05-01169, Chemistry Action Plan for transition of 1 CA-17, revise procedure 1/2-ODC-2.03 to convert Rac to Nuclear Environmental and Chemistry.	RETS, REMP a diation Protection	and ODCM. on responsibilities		
3.1.10	CR05-01390, Include GPS data in 2004 REMP Report 1/2-ENV procedures. CA-02, revise ODCM procedure	t and related 1/2 e 1/2-ODC-2.03	2-ODC and 3 to include an		

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Title: DDCM: 3.2 3.2.1 4.0	Radiological Environmental Monitoring Program	Unit: <u>1/2</u> Revision: 1	Level Of Use: General Skill Re Page Number:	eferen
3.2 3.2.1 4.0	Radiological Environmental Monitoring Program	1/2 Revision: 1	General Skill Re Page Number:	eferen
3.2 3.2.1 4.0		Revision: 1	Page Number:	
3.2 3.2.1 4.0		1		
3.2 <u>9</u> 3.2.1 4.0]			4 of 23	
3.2.1 4.0 <u>]</u>	Commitments			
4.0]	10 CFR 50 Appendix I		Í	
4.0				
	RECORDS AND FORMS			
4.1 <u>]</u>	Records			
4.1.1	Any calculation supporting ODCM changes shall be docu retrievable document (e.g., letter or calculation package) v number.	mented, as a with an appr	appropriate, by a opriate RTL	1
4.2 <u>]</u>	Forms			
4.2.1	None.			
5.0 <u>j</u>	PRECAUTIONS AND LIMITATIONS			: ;
5 1 · · ·		• •		;
5.1 . • r	neasurements in industrial laboratories.	ine environi	nental	; • ; ;
6.0 <u>/</u>	ACCEPTANCE CRITERIA			:
		. •)
r 4 2	naintain the level of radioactive effluent control required by 10 0 CFR Part 190, 10 CFR 50.36a and Appendix I to 10 CFR 50 ccuracy or reliability of effluent dose or setpoint calculation.	CFR 20.12 0, and not ac	302, dversely impact	the
6.1.1	All changes to this procedure shall be prepared in accordan and $1/2$ -ADM-1640 ^(3.1.5) .	nce with 1/2	-ADM-0100 ^(3.1.)	6)
6.1.2	All changes to this procedure shall be reviewed and approv $1/2$ -ADM-0101 ^(3.1.7) and $1/2$ -ADM-1640 ^(3.1.5) .	ved in accor	dance with	1 1 1
7.0 <u>I</u>	PREREQUISITES			
7.1 J	The user of this procedure shall be familiar with ODCM structu	are and form	nat.	•
8.0 I	PROCEDURE			
-•• <u>1</u>				t 1
8.1 <u>F</u>	REMP Overview			
8.1.1	Attachment A, Table 3.0-1 contains the site number, sector description, sampling and collection frequency, analysis, as various exposure pathways in the vicinity of the Beaver Va REMP. Attachment B, Figures 3.0-1 through 3.0-6 show t sampling points.	r, distance, s nd analysis : alley Power he location o	ample point frequency for Station for the of the various	

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	Beaver Valley Power Station	Procedure 1	Number:			
Title		T Init.	1/2-ODC-2.03			
ODCM: Ra	adiological Environmental Monitoring Program	1/2 Bavision:	General Skill Reference			
		1	5 of 23			
8.2 <u>Sa</u>	npling and Analysis Program					
8.2.1	Environmental samples shall be collected and an Table 3.0-1. Analytical techniques used shall be 1/2-ODC-3.03, Table 4.12-1 are achieved.	alyzed according to such that the detec	Attachment A, tion capabilities in			
8.2.2 The results of the radiological environmental monitoring are intended to supplement to results of the radiological effluent monitoring by verifying that the measurable concentrations of radioactive materials and levels of radiation are not higher than expected on the basis of the effluent measurements and modeling of the environmentate exposure pathways.						
8.2.2	The specified environmental monitoring pr radiation and of radioactive materials in the radionuclides which lead to the highest pot resulting from the station operation.	rogram provides me ose exposure pathw cential radiation exp	asurements of ays and for those osures of individuals			
8.2.2	.2 The initial radiological environmental mon for the first 3 years of commercial operatio maximum burnup in the initial core cycle). changes may be proposed based on operation	itoring program sho n (or other period c Following this per onal experience.	ould be conducted orresponding to a iod, program			
8.2.3	Deviations are permitted from the required sample unobtainable due to hazardous conditions, season automatic sampling equipment and other legitime	ling schedule if spe nal unavailability, m ate reasons.	cimens are alfunction of			
8.2.3	.1 <u>IF</u> specimens are unobtainable due to samp every effort shall be made to complete corr sampling period.	<u>IF</u> specimens are unobtainable due to sampling equipment malfunction, <u>THEN</u> every effort shall be made to complete corrective action prior to the end of the next sampling period.				
8.2.3	.2 All deviations from the sampling schedule REMP report.	All deviations from the sampling schedule shall be documented in the annual REMP report.				
8.3 <u>Cre</u>	osscheck Program					
8.3.1	The laboratories of the licensee and licensee's con- participate in the Environmental Protection Agen Radioactivity Laboratory Intercomparisons Studie program.	ntractors which per cy's (EPA's) Envir es (Crosscheck) Pro	form analyses shall onmental ogram or equivalent			
8.3.1	.1 This participation shall include all of the de radionuclide combination) that are offered l monitoring program.	This participation shall include all of the determinations (sample medium- radionuclide combination) that are offered by EPA and that also are included in the monitoring program.				
8.3.1	.2 The results of analysis of these crosscheck s REMP report. The participants in the cross program code so that the NRC can review t submission in the annual REMP report.	samples shall be inc scheck program may he participant data	cluded in the annual provide their directly in lieu of			

Beaver Valley Power Station	Procedure N	Procedure Number: 1/2-ODC-2,03			
Title: ODCM: Radiological Environmental Monitoring Program	Unit: 1/2	Level Of Use: General Skill Reference			
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8.3.1.3 <u>IF</u> the results of a determination in the crosscheck program are outside the specified control limits, <u>THEN</u> the laboratory shall investigate the cause of the problem and take steps to correct it. The results of this investigation and corrective action shall be included in the annual REMP report.

8.3.2 The requirement for the participation in the crosscheck program, is based on the need for independent checks on the precision and accuracy of the measurements of radioactive material in environmental sample matrices as part of the quality assurance program for environmental monitoring in order to demonstrate the results are reasonably valid.

8.4 Land Use Census Program

- 8.4.1 A census shall be conducted annually during the growing season to determine the location of the nearest milk animal, and nearest garden greater than 50 square meters (500 sq. ft.) producing broad leaf vegetation in each of the 16 meteorological sectors within a distance of 8 km.(5 miles).
 - 8.4.1.1 For elevated releases as defined in Regulatory Guide $1.111^{(3.1.4)}$, the census shall also identify the locations of <u>all</u> milk animals, and gardens greater than 50 square meters producing broad leaf vegetation out to a distance of 5 km (3 miles) for each radial sector.
 - 8.4.1.2 IF it is learned from this census that the milk animals or gardens are present at a location which yields a calculated thyroid dose greater than those previously sampled, or if the census results in changes in the location used in ODCM dose calculations, <u>THEN</u> a written report shall be submitted to the Director of Operating Reactors, NRR (with a copy to the Director of the NRC Regional Office) within 30 days identifying the new location (distance and direction).
 - 8.4.1.2.1 Milk animal or garden locations resulting in higher calculated doses shall be added to the surveillance program as soon as practicable.
 - 8.4.1.3 The sampling location (excluding the control sample location) having the lowest calculated dose may then be dropped from the surveillance program at the end of the grazing or growing season during which the census was conducted. Any location from which milk can no longer be obtained may be dropped from the surveillance program after notifying the NRC in writing that they are no longer obtainable at that location.
 - 8.4.1.4 The results of the land-use census shall be reported in the annual REMP report.

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- 8.4.1.5 The census of milk animals and gardens producing broad leaf vegetation is based on the requirement in Appendix I of 10 CFR Part 50^(3.2.1) to "Identify changes in the use of unrestricted areas (e.g., for agricultural purposes) to permit modifications in monitoring programs for evaluating doses to individuals from principal pathways of exposure." The consumption of milk from animals grazing on contaminated pasture and of leafy vegetation contaminated by airborne radioiodine is a major potential source of exposure. Samples from milk animals are considered a better indicator of radioiodine in the environment than vegetation.
 - 8.4.1.5.1 IF the census reveals milk animals are not present or are unavailable for sampling, <u>THEN</u> vegetation must be sampled.
- 8.4.1.6 The 50 square meter garden, considering 20% used for growing broad leaf vegetation (i.e., similar to lettuce and cabbage), and a vegetation yield of 2 kg/m², will produce the 26 kg/yr assumed in Regulatory Guide 1.109^(3.1.2), for child consumption of leafy vegetation.

8.5 Direct Radiation Monitoring Program

8.5.1 The increase in the number of direct radiation stations is to better characterize the individual exposure (mrem) and population exposure (man-rem) in accordance with Criterion 64 - monitoring radioactivity releases, of 10 CFR Part 50, Appendix A. The NRC will place a similar amount of stations in the area between the two rings designated in 1/2-ODC-3.03, Table 3.12-1.

- END -

					TABLE 3.0-1 PROGRAM DETAILS				DDCM:	
	EXPOSURE PATHWAY AND/O SAMPLE	<u>r site</u> <u>no.</u>	SECTOR	MILES ²	SAMPLE POINT DESCRIPTION ³	SAMPLING AND COLLECTION FREQUENCY	<u>TYPE AND</u> <u>FREQUENCY OF</u> <u>ANALYSES</u>		Radiolog	Ве
1.	AIRBORNE	13	11	1.49	Old Meyer Farm	Continuous	Radioiodine Cartridge:	E	gica	ave
	Radioiodine and	30	4	0.43	Shippingport (Cook's Ferry S.S.)	sampler operation	I-131 analysis weekly.		<u>н</u> .	14
	Particulates	32	15	0.75	Midland (North S.S.)	with collection at		0 0	'nν	
		46.1	2/3	2.28	Industry, McKeel's Service - Rt. 68	least weekly	Particulate Sampler:	DS D	irc	a l
		. 48	10	16.40	Weirton Water Tower, Collier Way		Gross beta analysis following filter change ⁵ ; Gamma isotopic analysis on composite (by location)	RE PATHW.	onmental Mor	lley Pow
2	DIRECT	10	3/4	0.94	Shippingport Post Office	Continuous	Gamma dose quarterly	AY A	nite	<u></u>
щ.	RADIATION	13	11	1 4 9	Old Mever Farm	measurement with	Gamma dose quarterry.		n.	
·	ICID IIIIIOIV	13	11	2 53	Hockstown Boro	quarterly		Nag A	gu	
		15	14	2.55	Georgetown Post Office	collection		D % C	P	l a
		27	7	6 14	Brunton Farm	concention.		S_{1}	30.	
		27	1	0.1 4 8.60	Sharman Farm				gra	ΙĔ
		20	2	0.00 7 07	Sherman Falm			$\mathbf{P} \stackrel{A}{\leftarrow} \mathbf{G}$	3	Ľ
		290	ر ۱	1.97	Shinning an ant (Calable Farma S. S.)			LIA	•	
		20	4	0.45	Midland (Marth S.S.)			Z Í		
		52 45	15	0.75	Christian House Dentist Change I. Dt. 18					l .
		45	ر ۲	2.19	Christian House Baptist Chaper - Rt. 18			Æ		
		43.1 40	0	1.92	Racoon Twp., Kennedy's Corner			Q		Į į
		40	2/2	2.49	Industry, Midway Drive			JII	7	<u> </u>
		40.1	2/3	2.28	Industry - McKeel's Service - Rt. 68			RE	Vevi	
		4/	14	4.88	East Liverpool Water Dept.			M		
		48	10	16.40	Weirton Water Tower, Collier Way			E		
		51	S	8.00	Aliquippa (Sheffield S.S.)			TIN		
		59	6	0.99	236 Green Hill Rd.			Š	305	5
		60	13	2.51	444 Hill Rd.				lige	Ó
		70	1	3.36	236 Engle Rd.				Nur Of	
		71	2	6.01	Brighton Twp., First Western Bank				nber: 8 c	12
									ill R	သ
			· •• ·		· · · ·				eference	:

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<u>EXPOSURE</u> PATHWAY AND/OR SAMPLE	<u>SITE</u> NO. S	ECTOR	MILES ²	TABLE 3.0-1 <u>PROGRAM DETAILS</u> <u>SAMPLE POINT</u> <u>DESCRIPTION³</u>	SAMPLING AND COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSES		Title: ODCM: Radio	B
2. DIRECT RADIATION (continued)	72 73 74 75 76 77 78 79	3 4 5 6 6 7 8	3.25 2.48 6.92 4.08 3.80 5.52 2.72 4.46	Ohioview Luthern Church - Rear 618 Squirrel Run Road 137 Poplar Ave CCBC 117 Holt Road Raccoon Elementary School 3614 Green Garden Road Raccoon Municipal Building 106 Rt. 151 - Ted McWilliams	Continuous measurement with quarterly collection.	Gamma dose quarterly.	EXPOSURE PATH	logical Environmental	eaver Valley Po
	80 81 82 83 84 85 86 87 88 89 90 91	9 9 10 11 12 13 14 15 15 16 2	8.27 3.69 6.99 4.26 8.35 5.73 6.18 7.04 2.74 4.72 5.20 3.89	Auto Body Raccoon Park Office, Rt. 18 Millcreek United Presby. Church 2697 Rt. 18 735 Mill Creek Road Hancock Co. Senior Center 2048 Rt. 30 1090 Ohio Ave., E. Liverpool 50103 Calcutta Smith's Ferry Rd. 110 Summit Rd., Midland Heights 488 Smith Ferry Rd., Ohioville 6286 Tuscarawras Rd. Pine Grove & Doyle Ponds	5		ATTACHMENT A Page 2 of 4 HWAY AND SAMPLING RE	Monitoring Program	ower Station
	91 92 93 94 95	2 12 16 8 10	3.89 2.81 1.10 2.25 2.37	Pine Grove & Doyle Roads Georgetown Rd. (Georgetown S.S.) 104 Linden - Sunrise Hills 832 McCleary Road McCleary Road & Pole Cat Hollow Rd.			EQUIREMENTS	Unit: Level Of Use: 1/2 General Skill Reference Revision: Page Number: 1 9 of 23	Procedure Number: 1/2-ODC-2.03

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					TABLE 3.0-1 (continued)				DD Fitte:	
					PROGRAM DETAILS				CM	
EX PA SA	<u>POSURE</u> THWAY AND/OR MPLE	<u>SITE</u> <u>NO.</u>	SECTOR ¹	MILES ²	SAMPLE POINT DESCRIPTION ³	SAMPLING AND COLLECTION FREQUENCY	<u>TYPE AND FREQUENCY</u> <u>OF ANALYSES</u>		I: Radiolo	Be
3. W.	ATERBORNE	49	3	4.92	Upstream of Montgomery Dam ⁴	Composite sample	Gamma isotopic analysis	ш	ogica	eav
a)	Surface (River)	2.1	14	1.43	Midland – ATI Allegheny Ludlam	with sample collection at least monthly ⁶ .	monthly; tritium analysis on composite (by location) quarterly.	XPOSUF	ll Enviror	er Val
b)	Drinking Water	4 5	15 14	1.26 4.90	Midland Water Dept. East Liverpool Water Dept.	Composite sample with sample collection at least bi-weekly ⁶ .	I-131 analysis bi-weekly; gamma isotopic analysis on composite (by location) monthly; tritium analysis on composite (by location) quarterly.	ATTA Pa RE PATHWAY AJ	nmental Monitorin	ley Power S
c)	Ground Water				None required ⁷			Age 3 ND S	g Pro	tatio
d)	Shoreline Sediment	2A	12	0.31	BVPS Outfall Vicinity	Semi-annually.	Gamma isotopic analysis semi-annually.	IENT A of 4 AMPLII	gram	n
4. IN a)	NGESTION Milk	25 * ⁸ * ⁸	10 	2.10 	Searight Farm	At least bi-weekly when animals are on pasture; at least monthly at other	Gamma isotopic and I-131 analysis on each sample.	NG REQUI		·
		96	10	10.48	Windsheimer Farm	times.		RE	Juit:	roce
b)	Fish	2A	12	0.31	BVPS Outfall Vicinity	Semi-annually	Gamma isotopic analysis. On edible portion	MENT	/2 1	dure Nun]
		49	3	4.92	Upstream of Montgomery Dam	available species.		Ś	Level Of U General Page Num	/2-ODC
c)	Food Products (Leafy Vegetables)	 	 		Three (3) locations within 5 miles of BVPS (Shippingport, Industry, and Georgetown) ^{9–} One (1) control location (Weirton, W. Va. area) ⁹	Annually at harvest time.	Gamma isotopic and I-131 analysis on edible portion.		Jse: Skill Réference ber: 10 of 23	-2.03

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ODCM: Title: TABLE 3.0-1 (continued) PROGRAM DETAILS SECTOR¹ MILES² SAMPLE POINT SAMPLING AND TYPE AND FREOUENCY Radiological Environmental Monitoring Program **EXPOSURE** SITE PATHWAY AND/OR NO. DESCRIPTION³ COLLECTION OF ANALYSES FREOUENCY Beaver EXPOSURE PATHWAY AND SAMPLING REQUIREMENTS ¹Sector numbers 1-16 correspond to the 16 compass direction sectors N - NNW. Valley ²Distance (in miles) is as measured from the midpoint between Unit 1 and Unit 2 Containment Buildings. ³All Sample Points are in the Commonwealth of Pennsylvania and the states of Ohio and West Virginia. Maps showing the approximate locations of the Sample Points are provided as Attachment B, Figures 3.0-1 through 3.0-6 and Attachment C. Power ⁴This is a Control Station and is presumed to be outside the influence of BVPS effluents. ATTACHMENT ⁵A gamma isotopic analysis is to be performed on each sample when the gross beta activity is found to be greater than 10 times the mean Station Page 4 of 4 of the Control Station sample. ⁶Composite samples are obtained by collecting an aliquot at intervals not exceeding 2 hours. For the upstream surface water location site 49, a weekly grab sample, composited each month is also acceptable. ⁷Collection of Ground Water samples is not required as the hydraulic gradient or recharge properties are directed toward the river because of the high terrain in the river valley at the BVPS; thus, station effluents do not affect local wells and ground water sources in the area. ⁸ These Sample Points will vary and are chosen based upon calculated annual deposition factors (highest). ⁹Exact location may vary due to availability of food products. Revision Unit: $\frac{1}{2}$ 2-0DC-2 Page Number Level Of Use: General Skill Reference <u>11 of 23</u> .03

SAMPLE



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ATTACHMENT B Page 2 of 12 LOCATION OF SAMPLING SITES

FIGURE 3.0-1 (Continued) AIR SAMPLING LOCATIONS

Sector	Site #	Distance (miles)	Location
11	13	1.49	Old Meyer Farm
4	30	0.43	Shippingport (Cook's Ferry S.S.)
15	32	0.75	Midland (North S.S.)
2/3	46.1	2.28	Industry - McKeel's Service - Rt. 68
10	48	16.40	Weirton Water Tower, Collier Way



		Door	or Volley Dower St	tation				Procedure Number:			
		Deav	er valley Power St	alloll				1/2-ODC-2.03			
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	Page 4 of 12										
	LOCATION OF SAMPLING SITES										
1											
	FIGURE 3.0-2 (continued)										
	TLD LOCATIONS										
	Southeast										
Sector											
Sector	Sile #	(miles)	Location		Sector	Sile #	(miles)		Location		
7	27	6.14	Brunton Farm	(9099 (5597	7	78	2.72	Raccoon	Municipal Bldg.		
6	45.1	1.92	Raccoon Twp., Kennedy Corners		8	79	4.46	106 Rt. 1:	51- Ted McWilliams Auto		
		0.00			× 0		0.07	Body			
	50	8.00	Anguppa (Sheffield S.S.)		9	80	8.27	Raccoon	Park Uffice, Rt. 18		
6	76	3.80	Raccoon Elementary School		8	82 94	2.25	McCleary	& Pole Cat Hollow Roads		
6	77	5.52	3614 Green Garden Road	2 416-3 8 4 5 49-3 4 5 5 44-5 4 5							
Partiel Incomparison of the Partiel Incomparison of the Partiel Incomparison of the Partiel Incomparison of the Partiel Pa								CARAGON CORNELLANDS NAME			
			No	rth	ıwest						
Sector	Site #	Distance	Location		Sector	Site #	Distance		Location		
		(miles)					(miles)				
14	15	3.75	Georgetown Post Office	1.011	14	87	7.04	50103 Ca	alcutta Smith's Ferry Rd.		
15	32	0.75	imidiana (North S.S.)		15	88	2.74	Heights	mit Kd., Midland		
14	47	4.88	E. Liverpool Water Dept.		15	89	4.72	488 Smit	h Ferry Rd., Ohioville		
13	60	2.51	444 Hill Road		16	90	5.20	6286 Tus	scarawras Rd.		
13	86	6.18	1090 Ohio Avenue, E. Liverpool		16	93	1.10	104 Lind	en - Sunrise Hills		
			No	ortł	neast						
Sector	Site #	Distance	Location	i den se stattet	Sector	Site #	Distance		Location		
		(miles)					(miles)				
3/4	10	0.94	Shippingport Post Office		1	70	3.36	236 Engl	e Rd.		
1	28	8.60	Sherman Farm		2	71	6.01	Brighton '	Twp., First Western Bank		
3	29B	7.97	Friendship Ridge		3	72	3.25	Ohioview	/ Luthern Church - Rear		
	30	0.45	Christian House Partiet		4	15	2.48	127 Dom	rrei Kun Kd.		
, ,	4-)	2.17	Chapel - Rt 18		*	/4	0.92	157 ropla			
3	46	2.49	Industry, Midway Dr.		5	75	4.08	117 Holt	Rd.		
2/3	46.1	2.28	Industry – McKeel's Service –		2	91	3.89	Pine Grov	ve Rd. & Doyle Rd.		
			Rt 68								
			Sou	uth	west						
Sector	Site #	Distance	Location		Sector	Site #	Distance		Location		
	~~~~ "	(miles)	LOUGHINM		~~~~		(miles)		200001011		
11	13	1.49	Old Meyer Farm	116249 >+ @+116	11	84	8.35	Hancock	Co. Senior Center		
11	14	2.53	Hookstown Boro	825 6797	12	85	5.73	2048 Rt. 1	30		
10	48	16.40	Weirton Water Tower, Collier Way		12	92	2.81	Georgetow	vn Rd. (Georgetown S.S.)		
9	81	3.69	Millcreek-United Presby. Church		10	95	2.37	832 McC	leary Rd.		
10	83	4.26	735 Mill Creek Rd.		a (ar-safa) biya 15976603.060	ALEXANDER (1991) ALEXANDER (1991)	lah (serve) separati Réference) i Stormage.	ADMANA ( AVIOSAS) KANKA BESCHOLARI ( AVIOSAS) KANKA	Recommendation and the second states and the		

Sector	Site #	Distance (miles)	Location		Sector	Site #	Distance (miles)	Location
11	13	1.49	Old Meyer Farm	27.22.29 >* 24.21	11	84	8.35	Hancock Co. Senior Center
11	14	2.53	Hookstown Boro	182736 16785	12	85	5.73	2048 Rt. 30
10	48	16.40	Weirton Water Tower, Collier Way		12	92	2.81	Georgetown Rd. (Georgetown S.S.)
9	81	3.69	Millcreek-United Presby. Church		10	95	2.37	832 McCleary Rd.
10	83	4.26	735 Mill Creek Rd.		eliyski bye Fyrki (Mi	strigtadet (tabl St(control) (tab	(a) (teatar) adaming Di(festata) (titung)(	adinand ( Antinania Sungali) ( Antinani ( Antinani Parasania), asar sari ( 2007) - 2007 1865 - 2007 - 2007 - 2007 - 2007 - 2007 1865 - 2007 - 2007 - 2007 - 2007 - 2007 - 2007 - 2007 - 2007 - 2007 - 2007 - 2007 - 2007 - 2007 - 2007 - 2007



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### ATTACHMENT B Page 6 of 12 LOCATION OF SAMPLING SITES

### FIGURE 3.0-3 (Continued)

### SHORELINE SEDIMENT, SURFACE WATER, AND DRINKING WATER SAMPLING LOCATIONS

Sample Type	Sector	Site #	Distance (miles)	Location	
Surface Water	14	2.1	1.43	Midland - ATI Allegheny Ludlam	
Surface Water	3	49	4.92	Upstream of Montgomery Dam	
Sediment	Sediment 12 2A 0.31		BVPS Outfall Vicinity		
Sediment*	3	49a	4.93	Upstream of Montgomery Dam	
Drinking Water	15	4	1.26	Midland Water Dept.	
Drinking Water	14	5	4.90	East Liverpool Water Dept.	

* Site #49a added – control site.



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				Page 8 of 12			
		]	LOCAT	ION OF SAMPLIN	NG SITES		
			FIC	JURE 3.0-4 (Conti	nued)	+	
			MILI	K SAMPLINGLOCA	TIONS		
i		Sector	Site #	Distance (miles)	Loca	tion	
		10	25	2.10	Searight Farm		
		10	96	10.48	Windsheimer Farm		
			*				
			*				
			*				
		*T	hree dairie	es based on highest de	position facto	rs.	
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						-	

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### ATTACHMENT B Page 10 of 12 LOCATION OF SAMPLING SITES

### FIGURE 3.0-5 (Continued) FOODCROP SAMPLING LOCATIONS

Site #	Description
10a	Shippingport Boro
15a	Georgetown Boro
46a	Industry Boro
48a	Weirton Area



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### ATTACHMENT B Page 12 of 12 LOCATION OF SAMPLING SITES

## FIGURE 3.0-6 (Continued) FISH SAMPLING LOCATIONS

Sector	Site #	Distance (miles)	Location	
12	2A	0.31	BVPS Outfall Vicinity	
3	49a	4.93	Upstream of Montgomery Dam	

# **Beaver Valley Power Station**

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## **Unit 1/2**

#### 1/2-ODC-2.04

**ODCM:** Information Related to 40 CFR 190

### Document Owner Manager, Nuclear Environmental & Chemistry

Revision Number	1
Level Of Use	General Skill Reference
Safety Related Procedure	Yes
Effective Date	12/29/06

Beaver Valley Power Station	Procedure Nu	mber:	
File		1/2-ODC-2.04	
,	1/2	General Skill Refere	nce
ODCM: Information Related to 40 CFR 190	Revision:	Page Number:	
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1.0 PURPOSE			3
2.0 SCOPE			3
3.0 REFERENCES AND COMMITMENTS			3
3.1 References		<u> Rozek je P</u>	3
3.2 Commitments		1	3 🛛 📈
4.0 RECORDS AND FORMS			3
4.1 Records			3
4.2 Forms	* 12 *		4
5.0 PRECAUTIONS AND LIMITATIONS		العملي تركيم وي المحافظ المعالي . 19 - ماري المحافظ المحافظ . 19 - ماري المحافظ .	4
6.0 ACCEPTANCE CRITERIA	•	regional de la composition de	
7.0 PREREQUISITES	· · · · · · · · · · · · · · · · · · ·	ju ^{de} lajoj	4 .
8.0 PROCEDURE			5
8.1 Information Related To 40 CFR 190		·····	5
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	Beaver Valley Power Station	Procedure N	Procedure Number: 1/2-ODC-2.04				
Title:		Unit: 1/2	Level Of Use: General Skill Reference				
ODCM: Information Related to 40 CFR 190		Revision: 1	Page Number: 3 of 6				
1.0	PURPOSE						
1.1	This procedure provides the steps to be taken when the T Control 4.11.4.1 exceeds twice the limit of any of the OD Dose Limit. ^(3.1.2)	otal Dose of OD CM Controls sp	CM ecifying an Offsite				
1.	1.1 Prior to issuance of this procedure, these items were ODCM.	located in Section	on 4 of the old				

### 2.0 <u>SCOPE</u>

2.1 This procedure is applicable to all station personnel that are qualified to perform activities as described and referenced in this procedure.

#### 3.0 <u>REFERENCES AND COMMITMENTS</u>

### 3.1 **References**

- 3.1.1 40 CFR Part 190
- 3.1.2 1/2-ODC-3.03, ODCM: Controls for RETS and REMP Programs
- 3.1.3 1/2-ADM-1640, Control of the Offsite Dose Calculation Manual
- 3.1.4 1/2-ADM-0100, Procedure Writer's Guide
- 3.1.5 1/2-ADM-0101, Review and Approval of Documents
- 3.1.6 CR 05-01169, Chemistry Action Plan for Transition of RETS, REMP and ODCM. CA-18, Revise procedure 1/2-ODC-2.04 to change document owner from Manager, Radiation Protection to Manager, Nuclear Environmental & Chemistry.

### 3.2 **Commitments**

- 3.2.1 10 CFR 20.405(c), Special Reports
- 3.2.2 NUREG-1301, Offsite Dose Calculation Manual Guidance: Standard Radiological Effluent Controls for Pressurized Water Reactors (Generic Letter 89-01, Supplement No. 1)

### 4.0 <u>RECORDS AND FORMS</u>

### 4.1 **<u>Records</u>**

4.1.1 Any calculation supporting ODCM changes shall be documented, as appropriate, by a retrievable document (e.g.; letter or calculation package) with an appropriate RTL number.

Beaver Valley Power Station	Procedure Num	ber:
Title:	L. Unit:	/2-ODC-2.04 Level Of Use:
	1/2	General Skill Reference
ODCM: Information Related to 40 CFR 190	Revision: 1	Page Number: 4 of 6
4.0 E	<b>t</b> t	
4.2 <u>Forms</u>		6 1 1-
4.2.1 None		· · · · · · · · · · · · · · · · · · ·
5.0 PRECAUTIONS AND LIMITATIONS		
5.1 The Offsite Dose Limits used to show compliance to this proced	ure are as f	ollows:
5.1.1 ODCM Control 3.11.2.a; Liquid Effluents: $\leq 1.5$ mrem/qua $\leq 5$ mrem/quarter any Organ.	rter Total I	Body or Antonio
5.1.2 ODCM Control 3.11.2.b; Liquid Effluents: $\leq$ 3 mrem/year $\leq 10$ mrem/year any Organ.	Fotal Body	or
5.1.3 ODCM Control 3.11.2.2.a; Gas Effluent-Noble Gas: $\leq$ 5 m $\leq$ 10 mrad/quarter Beta	rad/quarter	Gamma, or
5.1.4 ODCM Control 3.11.2.2.b; Gas Effluents-Noble Gas: $\leq 10$ $\leq 20$ mrad/year Beta	mrad/year	Gamma
5.1.5 ODCM Control 3.11.2.3.a; Gas Effluents-Particulates & Ioc any organ	lines: $\leq 7.5$	5 mrem/quarter
5.1.6 ODCM Control 3.11.2.3.b, Gas Effluents-Particulates & Ioc organ	lines: $\leq 15$	mrem/year any
5.1.7 ODCM Control 3.11.4.1; All Fuel Cycle Sources: $\leq 25$ mre Organ, except the thyroid, which is limited to $\leq 75$ mrem/ye	m/year Tot ar	al Body or any
6.0 <u>ACCEPTANCE CRITERIA</u>	, ,	
6.1 Any changes to this procedure shall contain sufficient justification maintain the level of radioactive effluent control required by 10 C Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR 50, and not accuracy or reliability of effluent dose or setpoint calculation. ^(3.2.2)	n that the c CFR 20.130 t adversely	hange will 02, 40 CFR impact the
6.1.1 All changes to this procedure shall be prepared in accordanc and 1/2-ADM-1640. ^(3.1.3)	e with 1/2	ADM-0100 ^(3.1.4)
6.1.2 All changes to this procedure shall be reviewed and approve 1/2-ADM-0101 ^(3.1.5) and 1/2-ADM-1640. ^(3.1.3)	d in accord	ance with
7.0 <u>PREREQUISITES</u>		
7.1 The user of this procedure shall be familiar with ODCM structure	e and conte	nt.

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Beaver Va	Illey Power Station	Procedure Nur	nber: 1/2-ODC-2.04
Title:		Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Information Related	l to 40 CFR 190	Revision:	Page Number: 5 of 6
8.0 <u>PROCEDURE</u>	·		L.,
8.1 Information Relate	d To 40 CFR 190		
	4.1 requires that when the calculated days		d with the offluent
releases exceed 3.11.2.2.b, 3.11	twice the limits of ODCM CONTROL 3.11 2.3.a, or 3.11.2.3.b, the following shall be	.1.2.a, 3.1	1.1.2.b, 3.11.2.2.a,
8.1.1.1 Calculatio (including commitme radioactiv $\leq 25$ mren $\leq 75$ mren	ns shall be made including direct radiation of outside storage tanks, etc.) to determine we ent to any MEMBER OF THE PUBLIC fro ity and to radiation from uranium fuel cycle in to the total body or any organ, except the in for a calendar year.	contribution hether the m all facilit sources ex thyroid, w	ns from the units dose or dose ty releases of acceeds the limits of hich is limited to
8.1.1.1.1 If an with follow	ny of these limits are exceeded, prepare and in 30 days a Special Report pursuant to 10 owing shall be included in the Special Repor	submit to † CFR 20.40 t:	the Commission 05(c). ^(3.2.1) The
8.1.1.1.1.1	Define the corrective action to be taken to to prevent recurrence of exceeding the lin CONTROL 3.11.4.1.	o reduce su nits of OD(	ibsequent releases CM
8.1.1.1.1.2	Include the schedule for achieving confor ODCM CONTROL 3.11.4.1.	mance with	nin the limits of
8.1.1.1.1.3	Include an analysis that estimates the radi MEMBER OF THE PUBLIC from uranis including all effluent pathways and direct year that includes the release(s) covered b	ation expos um fuel cyc radiation, f by this repo	sure (dose) to a cle sources, for the calendar ort.
8.1.1.1.1.4	Describe levels of radiation and concentra involved, and the cause of exposure levels	ations of ra s or concer	dioactive material atrations.
8.1.1.1.1.5	If the estimated dose(s) exceeds the limits CONTROL 3.11.4.1, and if the release co of 40 CFR Part 190 has not already been for a variance in accordance with the prov Submittal of the report is considered a tim granted until staff action on the request is	s of ODCM ondition res corrected, visions of 4 nely reques complete.	f sulting in violation include a request 0 CFR Part 190. t, and a variance is

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Beaver Valley Power Station		on	Procedure Number:			
т:::-:-		j i ovoi stati		r T	1/2-ODC-2.	04
The:			ľ	1/2	General Sk	till Reference
ODCM: Information Related to 40 CFR 190				Revision:	Page Number:	
				1	6	of 6
8.2 Inside	The Site Bound:	ary Radiation Doses	<u>.</u>			
8:2.1 In r OF pro	A separate ass OF THE PUBLIC d ovided: A separate ass OF THE PUB necessary beca with the plant dose calculation	ment of radiation dos lue to their activities sessment of radiation BLIC due to their acti ause the exposure tin site is minimal in cor on at or beyond the s	es (from Radioactive inside the site bound doses from radioact vities inside the site ne for individuals not nparison to the expo ite boundary.	e Effluen lary, the ive efflue boundary t occupat osure tim	ts) to MEM following is ents to MEM y is generally tionally asso e considered	BERS BERS y not ciated f for the
8.2.1.2	MEMBER OI dose assessme for a MEMBE	F THE PUBLIC insidents for an offsite ME ER OF THE PUBLIC	the site boundary EMBER OF THE PL Conducting activitie	is not ne JBLIC is es onsite.	eded becaus also assume	a e the ed to be
8.2.1.2	2.1 This is v used for than the THE PU (0-0.5 n paramet	verified by showing the dose calculation at the $\chi/Q$ dispersion parameters of the parameters of the dispersion parameters is as follows:	hat the ground releas he site boundary (0.1 meter at the location kely have the maxim es NNW). A compa	se χ/Q di 352 mile where a num expo rison of	spersion par s NW) is gro MEMBER osure time these χ/Q di	ameter eater OF spersion
<b></b>		/		1 17 -		- v
χ/	Q Used for Dose	$\chi/Q$ Where a	n Assumed	$\int \chi/QR$	leterences	
Calculation		MEMBEROF	THE PUBLIC		rom	
		Would Most Likely I	Have the Maximum	1/2-0	DC-2.02	
		Exposur	eTime	ļ		
	Site Boundary	Inside the Site	Inside the Site	See Att	achment F	,
C	).352 miles NW	Boundary	Boundary			

- END -

0-0.5 miles NNW

 $5.47\text{E}-5 \text{ sec/m}^3$ 

6.01E-5 sec/m³

5.57E-5 sec/m³

5.47E-5 sec/m³

5.47E-5 sec/m³

5.57E-5 sec/m³

Table 2.2-4

Table 2.2-5

Table 2.2-7

Table 2.2-8

Table 2.2-9

Table 2.2-10

0-0.5 miles N

 $2.33\text{E}-5 \text{ sec/m}^3$ 

2.76E-5 sec/m³

2.44E-5 sec/m³

2.33E-5 sec/m³

2.33E-5 sec/m³

2.44E-5 sec/m³

9.24E-5 sec/m³

1.03E-4 sec/m³

7.35E-5 sec/m³

9.24E-5 sec/m³

9.24E-5 sec/m³

7.35E-5 sec/m³

# **Beaver Valley Power Station**

## **Unit 1/2**

### 1/2-ODC-3.01

### **ODCM:** Dispersion Calculation Procedure and Source Term Inputs

### Document Owner Manager, Nuclear Environmental & Chemistry

Revision Number	1
Level Of Use	General Skill Reference
Safety Related Procedure	Yes
Effective Date	12/29/06

	Beaver Valley Power Station	Procedure Nu	Imber:
Title:		Unit:	Level Of Use:
		1/2	General Skill Reference
ODC	M: Dispersion Calculation Procedure and Source Term Inputs	Revision:	Page Number:
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	3.2 Commitments		
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	8.2.1 Liquid Source Term Inputs	•••••	
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	Beaver Valley Power Station	Procedure Nu	1/2 - ODC - 3 01
Title:		Unit:	Level Of Use:
ODCM: D	Dispersion Calculation Procedure and Source Term Inputs	1/2 Revision: 1	Page Number: 3 of 12
1.0 <u>PU</u>	URPOSE		
1.1 Th an	is procedure contains the basic methodology that was used to deposition (D/Q).	for calculati	ing dispersion (χ/Q)
1.1.1	Prior to issuance of this procedure, these items were locate ODCM.	ed in Apper	ndix A of the old
1.2 Th Li mi	is procedure also contains the input parameters to the variou censee and its subcontractors for determination of the liquid txes.	is computer and gaseou	codes used by the as source term
1.2.1	Prior to issuance of this procedure, these items were locate ODCM.	ed in Apper	ndix B of the old
2.0 <u>SC</u>	COPE		
2.1 Th qu	is procedure is applicable to all station personnel (including alified to perform activities as described and referenced in the	subcontrac	etors) that are re.
3.0 <u>RI</u>	EFEFERENCES AND COMMITMENTS		
3.1 <u>Re</u>	ferences		
3.1.1	NUS-2173, Development Of Terrain Adjustment Factors Fo Power Station, For the Straight-Line Atmospheric Dispers June 1978	or Use At th sion Model,	e Beaver Valley NUS Corporation,
3.1.2	NUREG/CR-2919, XOQDOQ: Computer Program For T Of Routine Effluent Releases At Nuclear Power Stations,	he Meteoro September,	logical Evaluation 1982
3.1.3	Regulatory Guide 1.23, Meteorological Measurement Prog	gram for Nu	clear Power Plants
3.1.4	Regulatory Guide 1.111, Methods for Estimating Atmospl of Gaseous Effluents In Routine Releases From Light-Wa Revision 1, July 1977	heric Transj ter-Coded I	port and Dispersion Reactors,
3.1.5	NRC Gale Code,		
3.1.6	SWEC LIQ1BB Code,		
3.1.7	SWEC GAS1BB Code,		
3.1.8	NUREG-1301, Offsite Dose Calculation Manual Guidance Effluent Controls for Pressurized Water Reactors (Generic No. 1)	e, Standard : Letter 89-	Radiological 01, Supplement
3.1.9	1/2-ADM-1640, Control of the Offsite Dose Calculation N	/Ianual	

· · · ·	Beaver Valley Power Station	Procedure Nur 1	nber: $/2-ODC-3.01$
Title:		Unit:	Level Of Use:
ODCM: D	ispersion Calculation Procedure and Source Term Inputs	1/2 Revision:	Page Number: 4 of 12
3.1.10	1/2-ADM-0100, Procedure Writer's Guide		<u> </u>
3.1.11	1/2-ADM-0101, Review and Approval of Documents		
3.1.12	CR 05-01169, Chemistry Action Plan for Transition of RE CA-19, Revise procedure 1/2-ODC-3.01 to change docum Radiation Protection to Manager, Nuclear Environmental a	TS, REMP ent owner f & Chemistr	and ODCM. rom Manager, y.
3.2 <u>Cc</u>	ommitments		
3.2.1	None		
4.0 <u>RI</u>	ECORDS AND FORMS		
4.1 <u>Re</u>	cords		
4.1.1	Any calculation supporting generation of dispersion, deposishall be documented, as appropriate, by a retrievable documpackage) with an appropriate RTL number.	sition, or so ment (e.g.; l	urce term mixes etter or calculation
4.2 <u>Fo</u>	rms		
4.2.1	None		
5.0 <u>PF</u>	RECAUTIONS AND LIMITATIONS		
5.1 Th Ap	is procedure contains the information that was previously copendix B of the previous BV-1 and 2 Offsite Dose Calculati	ntained in A on Manual.	Appendix A and
5.1.1	In regards to this, the Tables that were transferred from Ap the appropriate ATTACHMENTS of this procedure will st an "A" or "B".	ppendix A a ill contain a	nd Appendix B to a prefix denoting
6.0 <u>A(</u>	CCEPTANCE CRITERIA		
6.1 An ma Pa: acc	by change to this procedure shall contain sufficient justification intain the level of radioactive effluent control required by 10 rt 190, 10 CFR 50.36a and Appendix I to 10 CFR 50, and no curacy or reliability of effluent dose or setpoint calculation.	on that the o CFR 20.13 t adversely	change will 302, 40 CFR impact the
6.1.1	All changes to this procedure shall be prepared in accordar and 1/2-ADM-1640. ^(3.1.9)	nce with 1/2	-ADM-0100 ^(3.1.10)
6.1.2	All changes to this procedure shall be reviewed and approv 1/2 ADM-0101 ^(3.1.11) and 1/2-ADM-1640. ^(3.1.9)	ved in accor	dance with
7.0 <u>PR</u>	REREQUISITES		
7.1 Th	e user of this procedure shall be familiar with ODCM structu	ire and cont	ent.

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Be	aver Valley Power Station	Procedure Nur	nber: /2-ODC-3 01
Title:		Unit:	Level Of Use: General Skill Reference
ODCM: Dispersi	on Calculation Procedure and Source Term Inputs	Revision:	Page Number: 5 of 12
8.0 <u>PROCE</u>	DURE		
8.1 <u>Summary</u>	y of Dispersion and Deposition Methodology		
8.1.1 Ann depo activ RG-	ual average and grazing season average values of relat osition (D/Q) were calculated for continuous and inter- vity from the site according to the straight-line airflow $1.111.^{(3.1.4)}$	tive concent mittent gase (Gaussian)	tration $(\chi/Q)$ and sous releases of model described in
8.1.1.1	Undecayed and undepleted sector average $\chi/Q$ and I each of sixteen 22.5-degree sectors at the site bound receptors.	D/Q values v ary and may	were obtained for kimum individual
8.1.1.2	For an elevated release, (i.e.; occurring at a height th of a nearby structure) credit was taken for the effecti comprised of the physical release height plus moment terrain height at a given receptor.	at is twice t ive release f ntum plume	the height or more neight which is rise minus the
8.1.1.3	A building wake correction factor was used to adjust releases.	t calculatior	ns for ground-level
8.1.1.4	Airflow reversals were also accounted for by applyin recirculation factors for both ground and elevated re-	ng site-spected leases at the	ific terrain e site. ^(3.1.1)
8.1.1.5	The methodology employed in the calculation of intervalues is that described in NUREG/CR-2919. ^(3.1.2)	ermittent re	lease $\chi/Q$ and D/Q
8.1.2 The follo	site continuous gaseous release points that have been owing:	evaluated in	clude the
8.1.2.1	PV-1/2: The Unit 1/2 Gaseous Waste/Process Vent draft cooling tower	attached to	the Unit 1 natural
8.1.2.2	CV-1 and CV-2: The Unit 1 Rx Containment/SLCR Filtered Pathway	S Vented th	ne Unit 2 SLCRS
8.1.2.3	VV-1 and VV-2: The Unit 1 Ventilation Vent and the Pathway	he Unit 2 SI	CRS Unfiltered
8.1.2.4	TV-2: The Unit 2 Turbine Building Vent		
8.1.2.5	CB-2: The Unit 2 Condensate Polishing Building V	ent	
8.1.2.6	DV-2: The Unit 2 Decontamination Building Vent		
8.1.2.7	WV-2: The Unit 2 Gaseous Waste Storage Tank Va	ult Vent	
8.1.3 The	intermittent releases are from PV-1/2, VV-1, VV-2, C	V-1 and CV	7-2.

Procedure Nu	umber:
	1/2-ODC-3.01
Unit: 1/2	Level Of Use: General Skill Reference
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h all other i e character	release points being istics and their
through De	ecember 31, 1980
period fror al data base ng season.	n May 1 through e. This grazing
RC RG-1.2	3 ^(3.1.3) as described
ns consist c bility. The points excep -35 ft) whic	of wind speed, wind lower level winds pt the Process Vent ch are representative
es for the c e boundary, goat, and ne	ontinuous and nearest resident, earest meat animal.
each recepto maximum	for type were $\chi/Q$ and D/Q
eceptors fro e 2.2-3) of	om the radioactive 1/2-ODC-2.02.
t the specia t, Turbine I e Vault Ven NT F (Table al average ) nwind dista	l locations for the Building Vents, and Condensate es 2.2-4 through (/Q's for these same ances of 0-5 miles.
se points ar of 1/2-OD ENT L (Tab	e given in C-2.02 for the same les 2.3-28 through
uilding, the Q's and D/0	Decontamination Q's are the same as
	Unit: 1/2 Revision: 1 h all other re- character: through De- period from al data base g season. RC RG-1.2 ns consist of pility. The points excep- 35 ft) which es for the c boundary, goat, and ne- ach receptors from e 2.2-3) of t the special t, Turbine I vault Ver- NT F (Table al average ) nwind distance points ar of 1/2-OD- ENT L (Table uilding, the Q's and D/O

**ه**.

Beaver Valley Power Station	Procedure Nu	umber: 1/2-ODC-3.01
Title:	Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Dispersion Calculation Procedure and Source Term Inputs	Revision: 1	Page Number: 7 of 12
<ul> <li>8.1.6.6 Likewise, the Turbine Building Vent χ/Q's and D/Q' Polishing Building as well due to its location adjaces</li> <li>8.1.7 ATTACHMENT M (Tables 2.3-35 through 2.3-38) of 1/2 χ/Q values for batch releases originating from the Contain and Process Vent releases respectively.</li> </ul>	s apply to the Tu of to the Tu -ODC-2.02 ment Vent	the Condensate arbine Building. 2 contain short term , Ventilation Vent,

8.1.7.1 The values in these tables are based on 32 hours per year of Containment and Ventilation Vent purges and 74 hours per year of Process Vent purges.

#### 8.2 Summary of Source Term Inputs

- 8.2.1 Liquid Source Term Inputs
  - 8.2.1.1 Inputs to the NRC Gale Code used for generation of BV-1 Liquid Source Term Mixes are shown in ATTACHMENT B (Table B:1a).
  - 8.2.1.2 Inputs to the SWEC LIQ1BB Code used for generation of BV-2 Liquid Source Term Mixes are shown in ATTACHMENT B (Table B:1b)
- 8.2.2 Gaseous Source Term Inputs
  - 8.2.2.1 Inputs to the SWEC GAS1BB Code for generation of BV-1 Gaseous Source Term Mixes are shown in ATTACHMENT C (Table B:2a)
  - 8.2.2.2 Inputs to the SWEC GAS1BB Code for generation of BV-2 Gaseous Source Term Mixes are shown in ATTACHMENT C (Table B:2b)

Beaver Valley Power Station					nber: /2-000-3.01			
Title:				Unit:	Level Of Use:			
ODCM ⁻ Dispersion	1/2 Revision:	Page Number:						
ATTACHMENT A								
Page 1 of 1								
BV-1 AND 2 RELEASE CONDITIONS								
		TABLE A:1						
	VV-1 VENTILATION VENT (PAB EXHAUST)	CV-1 RX CONTAINMENT/ SLCRS VENT	PV-1/2 WASTE VENT	GASEOUS E/PROCESS	TV-2 TURBINE BUILDING VENT			
	VV-2 SLCRS UNFILTERED PATHWAY	CV-2 RX CONTAINMENT/ SLCRS FILTERED PATHWAY						
TYPE OF RELEASE	GROUND LEVEL	GROUND LEVEL	ELF	EVATED	GROUND LEVEL			
	Long Term And Short Term	Long Term And Short Term	Long Sha	Term And ort Term	Long Term And Short Term			
Release Point Height (m)	26	47		155	33			
Adjacent Building Height (m)	19	44		155 .	33			
Relative Loca tion To Adjacent Structures	E. Side Of Primary Auxiliary Bldg	Top Center Of Containment Dome	Atop Co	ooling Tower	Turbine Building			
Exit Velocity(m/sec)	NA	NA		9.4	NA			
Internal Stack Diameter (m)	NA	NA		0.25	NA			
Building Cross- Sectional Area (m ² )	1600	1600		NA	NA			
Purge Frequency* (hours/year)	32	32		74	NA			
Purge Duration (hrs/release)	8	8		NA	NA			

2

*Applied to Short Term calculations only

Clean Waste

Input Dirty Waste

Ínput

Blowdown

Untreated

Blowdown

7.50E1

1.35E3

9.75E4

0.0

1.000

0.035

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1.000

1.000

1.000

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0.071

0.071

0.071

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0.648

0.648

0.648

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1E5

1E5

1E5

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2E4

2E4

2E4

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1E5

1E5

1E5

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Beaver Valley Power Station				Beaver Valley Power Station Procedure Number: 1/2-ODC-			DC-3.01	
Title:					U	nit:	Leve	el Of Use:
ODCM: Disp	ersion Calcul	ation Proce	dure and Sour	ce Term Inp	uts R	<u>1/2</u> evision:	Ge Page	Number:
·		· · · · · · · · · · · · · · · · · · ·	ATTACH	MENT B	<b>_</b>	l		9 of 12
			Page 1	of 2				
		LIQ	UID SOURCE	TERM INF	UTS			
INPUTS TO	GALE COD	E FOR GEN	TABLI VERATION O	E B:1a F BV-1 LIQ	UID SO	URCE	TERM	1 MIXES
	BV	-1 PWR INF	UTS	-		VAL	.UE	
Thermal Powe	r Level (mega	watts)				27	66.000	1
Plant Capacity	Factor						.800	i
Mass Of Prima	ary Coolant (th	nousand lbs)				3	45.000	I
Percent Fuel V	Vith Cladding	Defects					.120	l
Primary Syster	m Letdown Ra	ite (gpm)					60.000	
Letdown Catic	on Demineraliz	er Flow					6.000	ı.
Number Of St	eam Generator	S					3.000	i
Total Steam F	low (million lb	os/hr)				11.620		
Mass Of Steam	n In Each Stea	m Generator	(thousand lbs)			6.772		
Mass Of Liqui	d In Each Stea	im Generator	(thousand lbs)		•	I	97.000	
Total Mass Of	Secondary Co	olant (thous	and lbs)			12	96.000	1
Mass Of Wate	r In Steam Ger	nerator (thou	sand lbs)			2	91.000	I Contraction of the second
Blowdown Ra	te (thousand lt	os/hr)					33.900	l
Primary To Se	condary Leak	Rate (lbs/da	y)			1	00.000	I
Fission Produc	t Carry-Over	Fraction					.001	
Halogen Carry	-Over Fraction	1					.010	1
Condensate De	emineralizer F	low Fraction					0.000	I.
Radwaste Dilu	tion Flow (tho	ousand gpm)				:	22.500	
		BV-	1 LIQUID WAS	TE INPUTS				
	EI OW DATE			COLLECTION	DELAY	DECC	NTAM	IINATION
STREAM	(gal/dav)	OF PCA	DISCHARGE	(days)	(davs)	I	Cs	OTHERS
Shim Bleed Rate	1.32E4	1.000	0.000	11.260	7.220	1E7	1E7	1E7
Equipment Drains	6.00E2	1.000	0.000	11.260	7.220	1E7	1E7	1E7

Turbine Bldg Drains

7200

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1.0

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L Fitle:	seaver v	/allev -	Power Sta	tion		Procedur	e Number:	
litle:							1/2-0	DDC-3.01
						Unit:	Lev	el Of Use: eneral Skill Defere
	Colo	Jotic - Do	adure and C		Tumuta	Revision	Page	e Number
JUCM: Dispe	ersion Calcu	nation Proc	cedure and Sou	Irce I erm	inputs	]	. rag	10 of 12
			ATTACI	IMENT B				
			Page	2 of 2				
		LI	QUID SOURC	E TERM	<b>NPUTS</b>			
INPUTS T	O SWEC LI	Q1BB COD BV-	TABI E FOR GENER 2 PWR INPUTS	LE B:1b ATION OF	F BV-2 LIQ	UID SO	OURCE '	TERM MIXES VALUE
 T1	1D I	17						2766 000
1 hern	al Power Le	vel (megawa	tts)					2766.000
Plant (	Capacity raci	WF 'oolant (the	cand the)					.800
IVIASS	of Fuel With 1	Cladding De	sanu 105j fects					120
Prima	rv System Le	tdown Rate	(gpm)					57.000
	- ,							5
Letdo	wn Cation De	emineralizer	Flow					5.700
Numb	er Of Steam	Generators						3.000
Total	Steam Flow (	million lbs/h	ur)					11.600
Mass	Of Steam In I	Each Steam	Generator (thous	and lbs)				8.700
Mass	Of Liquid In	Each Steam	Generator (thous	and lbs)				100.000
Total	Mana Of Saar	andary Cool	ant (thousand the	`				2000.000
Mass	Of Water In 9	Steam Gener	and (incusand los	() ()				2000.000
Blow	Or water in a	ousand lbs/	aior (ulousallu it	is)				2230.000
Diowe	ry To Second	and I oak Ra	te (lbs/day)					100.000
Fissio	n Product Ca	ny Leak Ra	(its/uay)					001
1 15510			ouon					.001
Halog	en Carry-Ove	er Fraction						.010
Halog Conde	en Carry-Ove ensate Demin	er Fraction eralizer Flov	v Fraction					.010 .700
Halog Conde Radwa	en Carry-Ove ensate Demine aste Dilution	er Fraction eralizer Flov Flow (thous	v Fraction and gpm)					.010 .700 7.800
Halog Conde Radwa	en Carry-Ove ensate Demine aste Dilution	er Fraction eralizer Flov Flow (thouse F	v Fraction and gpm) BV-2 LIOUID W4	ASTE INPLI	rs			.010 .700 7.800
Halog Conde Radwa	en Carry-Ove ensate Demine aste Dilution	er Fraction eralizer Flov Flow (thous: E	v Fraction and gpm) BV-2 LIQUID WA	ASTE INPUT	rs DN DELAY	DE	CONTAN	.010 .700 7.800 MINATION
Halog Conde Radwa	en Carry-Ove ensate Demine aste Dilution FLOW RATE	er Fraction eralizer Flow Flow (thous E FRACTION	v Fraction and gpm) BV-2 LIQUID WA FRACTION	ASTE INPUT COLLECTIC TIME	IS N DELAY TIME	DE	CONTAN FACTO	.010 .700 7.800 MINATION DRS
Halog Conde Radwa	en Carry-Ove ensate Demine aste Dilution FLOW RATE (gal/day)	er Fraction eralizer Flow Flow (thouse E FRACTION OF PCA	v Fraction and gpm) BV-2 LIQUID WA FRACTION DISCHARGE	ASTE INPUT COLLECTIC TIME (hrs)	TS DN DELAY TIME (hrs)	DE I	CONTAN FACTO CsRb	010 700 7.800 MINATION DRS OTHERS
Halog Conde Radwa STREAM Containment Sump	en Carry-Ove ensate Demine aste Dilution FLOW RATE (gal/day) 40	Fraction eralizer Flow Flow (thouse FRACTION OF PCA 1.000	v Fraction and gpm) BV-2 LIQUID WA FRACTION DISCHARGE 1.0	ASTE INPUT COLLECTIC TIME (hrs) 35.5	TS N DELAY TIME (hrs) 6.2	DE I 1E3	CONTAN FACTO CsRb 1E4	010 700 7.800 MINATION DRS OTHERS 1E4
Halog Conde Radwa STREAM Containment Sump Auxiliary Building Sump	en Carry-Ove ensate Demine aste Dilution FLOW RATE (gal/day) 40 200	FRACTION OF PCA 0.100	v Fraction and gpm) BV-2 LIQUID WA FRACTION DISCHARGE 1.0 1.0	ASTE INPUT COLLECTIC TIME (hrs) 35.5 35.5	TS DELAY TIME (hrs) 6.2 6.2	DE I IE3 IE3	CONTAN FACTO CsRb 1E4 1E4	010 700 7.800 MINATION DRS OTHERS 1E4 1E4
Halog Conde Radwa STREAM Containment Sump Auxiliary Building Sump Miscellaneous Sources	en Carry-Ove ensate Demind aste Dilution FLOW RATE (gal/day) 40 200 700	Fraction Flow (thous: FRACTION OF PCA 1.000 0.100 0.010	v Fraction and gpm) BV-2 LIQUID WA FRACTION DISCHARGE 1.0 1.0 1.0	ASTE INPUT COLLECTIC TIME (hrs) 35.5 35.5 35.5	IS DN DELAY TIME (hrs) 6.2 6.2 6.2	DE I 1E3 1E3 1E3	CONTAN FACTO CsRb 1E4 1E4 1E4	010 700 7.800 MINATION DRS OTHERS 1E4 1E4 1E4
Halog Conde Radwa STREAM Containment Sump Auxiliary Building Sump Miscellaneous Sources Rx Plant Samples	en Carry-Ove ensate Demina aste Dilution FLOW RATE (gal/day) 40 200 700 35	Fraction eralizer Flow Flow (thous: FRACTION OF PCA 1.000 0.100 0.010 1.000	v Fraction and gpm) 8V-2 LIQUID W4 FRACTION DISCHARGE 1.0 1.0 1.0 1.0	ASTE INPUT COLLECTIO TIME (hrs) 35.5 35.5 35.5 35.5	TS N DELAY TIME (hrs) 6.2 6.2 6.2 6.2 6.2 6.2	DE I 1E3 1E3 1E3 1E3	CONTAN FACTO CsRb 1E4 1E4 1E4 1E4 1E4	010 700 7.800 7.800 MINATION DRS OTHERS 1E4 1E4 1E4 1E4 1E4
Halog Conde Radwa STREAM Containment Sump Auxiliary Building Sump Miscellaneous Sources Rx Plant Samples Lab Drains	en Carry-Ove ensate Demine aste Dilution FLOW RATE (gal/day) 40 200 700 35 400	Fraction eralizer Flow Flow (thous: FRACTION OF PCA 1.000 0.100 0.010 1.000 0.002	v Fraction and gpm) <u>8V-2 LIQUID W4</u> FRACTION DISCHARGE 1.0 1.0 1.0 1.0 1.0	ASTE INPUT COLLECTIC TIME (hrs) 35.5 35.5 35.5 35.5 35.5 35.5	TS DN DELAY TIME (hrs) 6.2 6.2 6.2 6.2 6.2 6.2 6.2	DE I 1E3 1E3 1E3 1E3 1E3	CONTAN FACTO CsRb 1E4 1E4 1E4 1E4 1E4	010 700 7 800 MINATION DRS OTHERS 1E4 1E4 1E4 1E4 1E4 1E4
Halog Conde Radwa STREAM Containment Sump Auxiliary Buílding Sump Miscellaneous Sources Rx Plant Samples Lab Drains Cond. Demin. Rinse Water	en Carry-Ove ensate Demina aste Dilution FLOW RATE (gal/day) 40 200 700 35 400 2685	er Fraction eralizer Flow Flow (thous: FRACTION OF PCA 1.000 0.100 0.010 1.000 0.002 1.1E-4	v Fraction and gpm) 3V-2 LIQUID W4 FRACTION DISCHARGE 1.0 1.0 1.0 1.0 1.0 1.0 1.0	ASTE INPUT COLLECTIO TIME (hrs) 35.5 35.5 35.5 35.5 35.5 35.5 35.5	TS N DELAY TIME (hrs) 6.2 6.2 6.2 6.2 6.2 6.2 6.2 6.2	DE I 1E3 1E3 1E3 1E3 1E3 1E3	CONTAN FACTO CsRb IE4 IE4 IE4 IE4 IE4 IE4	010 700 7.800 MINATION DRS OTHERS 1E4 1E4 1E4 1E4 1E4 1E4 1E4 1E4

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e:	Unit:	Level Of Use:
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ATTACHMENT C		
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GASEOUS SOURCE TERM INPUT	Ś	
TABLE B:2a		
INPUTS TO SWEC GAS1BB CODE FOR GENERATION OF BV-1 GAS	SEOUS SOUR	CE TERM MIXES
BV-1 PWR INPUTS		VALUE
Thermal Power Level (megawatts)		2766.000
Plant Capacity Factor		.800
Mass Of Primary Coolant (thousand lbs)		385.000
Percent Fuel With Cladding Defects		.120
Primary System Letdown Rate (gpm)		57.000
Letdown Cation Demineralizer Flow		5.700
Number Of Steam Generators		3.000
Total Steam Flow (million lbs/hr)		11.600
Mass Of Steam In Each Steam Generator (thousand lbs)		8.700
Mass Of Liquid In Each Steam Generator (thousand lbs)		100.000
Total Mass Of Secondary Coolant (thousand lbs)		2000.000
Mass Of Water In Steam Generator (thousand lbs)		298.000
Blowdown Rate (thousand lbs/hr)		52.000
Primary To Secondary Leak Rate (lbs/day)		100.000
Fission Product Carry-Over Fraction		.001
Halogen Carry-Over Fraction		.010
Condensate Demineralizer Flow Fraction		0.000
Radwaste Dilution Flow (thousand gpm)		15.000
BV-1 GASEOUS WASTE INPUTS		VALUE
There Is Not Continuous Stripping Of Full Letdown Flow		
Hold Up Time For Xenon (days)		39,000
Hold Un Time For Krypton (days)		2,000
Primary Coolant Leak To Auxiliary Building (lb/day)		160.000
Auxiliary Building Leak Iodine Partition Factor		7 5F-3
Gas Waste System Particulate Release Fraction		0.000
Auxiliary Building Charcologine Release Fraction		1,000
Auxiliary Building Particulate Release Fraction		1.000
Containment Volume (million cu-ft)		1.000
Frequency Of Primary Coolant Degassing (times/yr)		2,000
Primary To Secondary Leak Pate (lb/day)		100.000
There Is A Kidney Filter		100.000
Containment Atmosphere Cleanup Pate (thousand cfm)		2,000
Durge Time Of Containment (hours)		2.000
There Is Not A Condensate Demineralizer	:	8.000
Indire Destition Foster (gog/lig) In Steem Conserver		0.010
Francisco (gas/iii) in Steam Generator		0.010
Containing Data Lating Palace Fraction		4.000
Containment Volume Purge lodine Release Fraction		1.000
Containment Volume Purge Particulate Release Fraction		1.000
Steam Leak To Turbine Building (lbs/hr)		1700.000
Fraction lodine Released From Blowdown Tank Vent		0.000
Fraction lodine Released From Main Condensate Air Ejector There Is Not A Cryogenic Off Gas System		0.440
*2 cold and 2 hot purges		

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GASEOUS SOURCE TERM INPUTS		
TABLE B:2b INPUTS TO SWEC GAS1BB CODE FOR GENERATION OF BV-2 GASEC	OUS SOUR	CE TERM MIXES
BV-2 PWR INPUTS		VALUE
Thermal Power Level (megawatts)		2766.000
Plant Capacity Factor		.800
Mass Of Primary Coolant (thousand lbs)		385.000
Percent Fuel With Cladding Defects		.120
Primary System Letdown Rate (gpm)		57.000
Letdown Cation Demineralizer Flow		5.700
Number Of Steam Generators		3.000
lotal Steam Flow (million lbs/hr)		11.600
Mass Of Steam In Each Steam Generator (thousand lbs)		8.700
Mass Of Liquid III Each Stealin Generator (thousand los)		2000.000
Mass Of Water In Steam Generator (thousand lbs)		2000.000
Blowdown Rate (thousand lbs/br)		298.000
Primary To Secondary Leak Rate (lbs/day)		100.000
Fission Product Carry-Over Fraction		001
Halogen Carry-Over Fraction		010
Condensate Demineralizer Flow Fraction		.700
Radwaste Dilution Flow (thousand gpm)		7.800
BV-2 GASEOUS WASTE INPUTS		VALUE
There Is Not Continuous Stripping Of Full Letdown Flow		
Hold Up Time For Xenon (days)		45.800
Hold Up Time For Krypton (days)		2.570
Primary Coolant Leak To Auxiliary Building (lb/day)		160.000
Auxiliary Building Leak Iodine Partition Factor		7.5E-3
Gas Waste System Particulate Release Fraction		0.000
Auxiliary Building Charcolodine Release Fraction		0.100
Auxiliary Building Particulate Release Fraction		0.010
Containment Volume (million cu-ft)		1.800
Primary To Secondary Leak Date (Ib/day)		2.000
There Is A Kidney Filter		100.000
Containment Atmosphere Cleanup Rate (thousand ofm)		20,000
Purge Time Of Containment (hours)		8 000
There Is Not A Condensate Demineralizer		0.000
Iodine Partition Factor (gas/lig) In Steam Generator		0.010
Frequency Of Containment Building High Vol Purge (times/yr)*		4.000
Containment Volume Purge Iodine Release Fraction		1.000
Containment Volume Purge Particulate Release Fraction		1.000
Steam Leak To Turbine Building (lbs/hr)		1700.000
Fraction Iodine Released From Blowdown Tank Vent		0.000
Fraction Iodine Released From Main Condensate Air Ejector There Is Not A Cryogenic Off Gas System		0.270
*2 cold and 2 hot purges		

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# **Beaver Valley Power Station**

# **Unit 1/2**

# 1/2-ODC-3.02

**ODCM:** Bases For ODCM Controls

# Document Owner Manager, Nuclear Environmental and Chemistry

Revision Number	2
Level Of Use	General Skill Reference
Safety Related Procedure	Yes
Effective Date	12/29/06

Beaver Valley Power Station	Procedure Nu	mber: 1/2-ODC-3 02
Title: ODCM: Descer For ODCM Controls	Unit:	Level Of Use: General Skill Reference
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3.1 References	•••••••••••••••••••••••••••••••••••••••	
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ATTACHMENT A BASES FOR ODCM CONTROLS: INS	TRUMENTATIO	N
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ATTACHMENT E BASES FOR ODCM CONTROLS: RAI	DIOLOGICAL EN	VIRONMENTAL
MONITORING PROGRAM (REMP)		
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Beaver Valley Power Station		Procedure Number: 1/2-ODC-3.02		
Title: ODCM: Bases For ODCM Controls	Unit: 1/2	Level Of Use: General Skill Reference		
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# 1.0 <u>PURPOSE</u>

- 1.1 This procedure contains the Bases for the ODCM Controls that were transferred from the Bases Section of the Technical Specification per Unit 1/2 Amendments 1A-188/2A-70, and in accordance with Generic Letter 89-01 and NUREG-1301 (Generic Letter 89-01, Supplement No. 1) [ITS] and T.S. 5.5.2.^(3.1.5, 3.2.10)
  - 1.1.1 Prior to issuance of this procedure, these items were located in Appendix D of the old ODCM.
- 1.2 This procedure also contains the Bases for the ODCM Controls (for Radiation Monitoring Instrumentation) that were duplicated from the Bases Section of the Technical Specification per Unit 1/2 Amendments 1A-246/2A-124, and in accordance with NUREG-1431.^(3.1.6, 3.2.11)
- 1.3 This procedure also contains the Bases for the ODCM Controls (for Liquid Holdup Tank Activity Limits and for Gas Decay/Storage Tank Activity Limits) that were transferred from the Bases Section of the Technical Specification per Unit 1/2 Amendments 1A-250/2A-130, and in accordance with NUREG-1431.^(3.1.7, 3.2.11)

# 2.0 <u>SCOPE</u>

2.1 This procedure is applicable to all station personnel that are qualified to perform activities as described and referenced in this procedure.

# 3.0 <u>REFERENCES AND COMMITMENTS</u>

# 3.1 <u>References</u>

- 3.1.1 1/2-ODC-2.01, ODCM: Liquid Effluents
- 3.1.2 1/2-ODC-2.02, ODCM: Gaseous Effluents
- 3.1.3 1/2-ODC-3.03, ODCM: Controls for RETS and REMP Programs
- 3.1.4 1/2-ADM-1640, Control of the Offsite Dose Calculation Manual
- 3.1.5 Unit 1/2 Technical Specification 6.8.6, including Amendments 1A-188/2A-70 (LAR 1A-175/2A-37), Implemented August 7, 1995
- 3.1.6 Unit 1/2 Technical Specification 3.3.3.1, including Amendments 1A-246/2A-124 (LAR 1A-287/2A-159), Implemented April 11, 2002
- 3.1.7 Unit 1/2 Technical Specifications 3.11.1.4, 3.11.2.5 and 6.8.6, including Amendments 1A-250/2A-130 (LAR 1A-291/2A-163), Implemented August 7, 2002
- 3.1.8 1/2-ADM-0100, Procedure Writer's Guide
- 3.1.9 1/2-ADM-0101, Review and Approval of Documents

- ,	Beaver Valley Power Station	Procedure Ni	$\frac{1}{2} ODC = 3 O2$
Title:		Unit:	1/2-UDC-3.02 T Level Of Use:
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3.1.10	CR 05-01169 Chemistry Action Plan for Transition c	FRETS REM	P and ODCM
	CA-20. Revise procedure 1/2-ODC-3.02 to change dc	cument owner	from Manager,
	Radiation Protection to Manager, Nuclear Environme	ntal and Chemi	strv. CR 05-03306,
	Incorporated Improved Technical Specifications (ITS)	).	
<u> </u>			
3.1.11	[ <b>ITS</b> ] T.S. 5.5.2		
3.2 <u>Co</u>	mmitments		
3.2.1	10 CFR Part 20		
2.0.0	10 000 D		
3.2.2	10 CFR Part 50		
3.2.3	40 CFR Part 141		
3.2.4	40 CFR Part 190		
325	Regulatory Guide 1 109 Calculation Of Annual Dose	e To Man Fron	n Routine Releases
5.4.5	Of Deactor Effluents For The Purpose Of Evaluating (	S TO Mail 1901	H 10 CEP Part 50
	Appendix I Revision 1 October 1977	Jomphanee wi	th to CENT att 50,
3.2.6	Regulatory Guide 1.111, Methods For Estimating Atm	nospheric Trans	sport And
	Dispersion of Gaseous Effluents In Routine Releases !	From Light-Wa	ater-Cooled
	Reactors, Revision 1, July, 1977	-	
207	De la 1110 Defendine America Dimensi	0.070 (M	······································
3.2.7	Regulatory Guide 1.113, Estimating Aquatic Dispersion	on Of Effluents	From Accidentai
	And Routine Reactor Releases For The Purpose OF Im	iplementing Ap	pendix I, Aprii,
	1977		
3.2.8	NUREG-0133. Preparation of Radiological Effluent T	echnical Speci	fications for
,	Nuclear Power Plants, October 1978		
2.2.0	NEW COTT OF TO STATE AND A STATE DISC.	· · · · · · ·	1 1000
5.2.9	NUREG-0/3/, Clarification of TMI Action Plan Kequ	iirements, Octo	ber, 1980
3.2.10	NUREG-1301, Offsite Dose Calculation Manual Guid	lance. Standard	1 Radiological
	Effluent Controls For Pressurized Water Reactors (Ge	neric Letter 89	-01, Supplement
	No. 1)		·
· · 11	NUMBER 1421 Standard Taphnical Specifications W		C
3.2.11	NUREG-1451, Standard Technical Specifications - w	estingnouse r n	ants specifications
4.0 <u>RE</u>	CORDS AND FORMS	,	
4.1 <u>Re</u>	<u>cords</u>		
4.1.1	Any calculation supporting ODCM changes shall be d	ocumented, as	appropriate, by a
	retrievable document (eg; letter or calculation package	e) with an appro	opriate RTL
	number.		

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Beaver Valley Power Station	Procedure Number: 1/2-ODC-3.02	
Title: ODCM: Bases For ODCM Controls	Unit: 1/2	Level Of Use: General Skill Reference
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#### 4.2 <u>Forms</u>

#### 4.2.1 None

# 5.0 PRECAUTIONS AND LIMITATIONS

- 5.1 The numbering of each specific ODCM Bases contained in this procedure does not appear to be sequential. This is intentional, as all ODCM Bases numbers remained the same when they were transferred from the Technical Specifications. This was done in an effort to minimize the amount of plant procedure changes and to eliminate any confusion associated with numbering changes.
- 5.2 This procedure includes Improved Technical Specifications ([ITS]) information that is NOT applicable to current Technical Specifications ([CTS]) and [CTS] information that is NOT applicable in [ITS]. The [CTS] information shall be used prior to the [ITS] effective date. The [ITS] information shall be used on or after the [ITS] effective date.

# 6.0 ACCEPTANCE CRITERIA

- 6.1 Any change to this procedure shall contain sufficient justification that the change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appenidx I to 10 CFR 50, and not adversely impact the accuracy or reliability of effluent dose or setpoint calculation.^(3.2.10)
  - 6.1.1 All changes to this procedure shall be prepared in accordance with 1/2-ADM-0100^(3.1.8) and 1/2-ADM-1640.^(3.1.4)
  - 6.1.2 All changes to this procedure shall be reviewed and approved in accordance with 1/2-ADM-0101^(3.1.9) and 1/2-ADM-1640.^(3.1.4)

# 7.0 PREREQUISITES

7.1 The user of this procedure shall be familiar with ODCM structure and content.

#### 8.0 **PROCEDURE**

- 8.1 See ATTACHMENT A for a complete description of Bases for ODCM Controls associated with Instrumentation.
- 8.2 See ATTACHMENT B for a complete description of Bases for ODCM Controls associated with Liquid Effluents.
- 8.3 See ATTACHMENT C for a complete description of Bases for ODCM Controls associated with Gaseous Effluents.
- 8.4 See ATTACHMENT D for a complete description of Bases for ODCM Controls associated with Total Dose.

<ul> <li>^{intle:}</li> <li>DDCM: Bases For ODCM Controls</li> <li>8.5 See ATTACHMENT E for a complete description of Bases for with the Radiological Environmental Monitoring Program (RE -END-</li> </ul>	Unit: 1/2 Revision: 2 ODCM Co MP).	Level Of Use: General Sk Page Number: <u>6 o</u>	III Reference f 14 ciated
8.5 See ATTACHMENT E for a complete description of Bases for with the Radiological Environmental Monitoring Program (RE -END-	Revision: 2 ODCM Co MP).	Page Number <u>6 0</u> ontrols assoc	f 14 siated
<ul> <li>8.5 See ATTACHMENT E for a complete description of Bases for with the Radiological Environmental Monitoring Program (RE -END-</li> </ul>	• ODCM Co MP).	ontrols assoc	ziated
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	Page 1 of 1		
н. 1	BASES FOR ODCM CONTROLS INSTRUM	<b>MENTATIO</b>	V
3/4.3.3.1	RADIATION MONITORINGINSTRUMENTATION		
	The OPERABILITY of the radiation monitoring cha	nnels ensures	that: 1) the radiation
	levels are continually measured in the areas served by	v the individ	ial channels: 2) the
	alarm or automatic action is initiated when the redict	ion level trin	setnoint is evalad
	and 3) sufficient information is available on selected	nlant norom	supplin is exceeded,
	and 5) sufficient information is available on selected	plant paralite	nois to monitul allu
	assess mese variables following an accident. This ca	paunity is co	insistent with the
	recommendations of NUKEG-0/37.		
2/1 2 2 0	Ο ΛΟΙΟΛΟΤΙΛΕ Ι ΙΟΙ ΠΟ ΕΕΕΙ Ι ΠΑΤΤ ΧΑΟΝΤΆΟΡΟ		አብሮእፐቲ ለ ፒፐርሶኦ፣
3/4.3.3.9	RADIOACTIVE LIQUID EFFLUENT MONITORI.	NG INSTRU	MENIATION
	The radionative liquid offerent instrumentation is an		ten and control of
	The radioactive inquid entuent instrumentation is pro	vided to mor	ntor and control, as
	applicable, the releases of radioactive materials in liq	uid effluents	during actual or
	potential releases of liquid effluents. The alarm/trip	setpoints for	these instruments
	shall be calculated in accordance with Section 1 of the	is manual to	ensure that the
	alarm/trip will occur prior to exceeding the limits of	10 CFR Part	20. The
	OPERABILITY and use of this instrumentation is co	nsistent with	the requirements of
	General Design Criteria 60, 63, and 64 of Appendix	A to 10 CFR	Part 50. ^(3.2.1, 3.2.2)
3/4.3.3.10	RADIOACTIVE GASEOUS EFFLUENT MONITO	RING INST	RUMENTATION
	The radioactive gaseous effluent instrumentation is p	rovided to m	onitor and control, as
	applicable, the releases of radioactive materials in ga	seous effluen	ts during actual or
	potential releases of gaseous effluents. The alarm/tri	p setpoints fo	or these instruments
	shall be calculated in accordance with Section 2 of th	is manual to	ensure that the
	alarm/trip will occur prior to exceeding the limits of	10 CFR Part	20 This
	instrumentation also includes provisions for monitori	ng (and cont	rolling) the
	concentrations of potentially explosive as mixtures	in the waste	vae holdun evetem
	The ODED ADILITY and use of this instrumentation	in the waste	sas noicup system.
	of Conoral Dagian Criteria 60, 62, and 64 of Amand		FD Dort 50 $(3.2.1, 3.2.2)$
	or General Design Cineria 00, 03, and 04 of Appendi		Kralt JU.
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- / /	-		
3/4.11.1.1	LIQUID EFFLUENT CONCENTRATION		-
	released in Liquid waste effluents from the site to u times the EC's specified in 10 CFR Part 20, Append Column 2. This limitation provides additional assu materials in bodies of water outside the site will res Section II.A design objectives of Appendix I, 10 CI the limits of 10 CFR Part 20.1302 to the population dissolved or entrained noble gases is based upon the controlling radioisotope and its MPC in air (submer concentration in water using the methods described Radiological Protection (ICRP) Publication 2. ^(3.2.1, 3)	in restricted are dix B (20.1001 rance that the ult in exposure FR Part 50, to The concent e assumption t rsion) was com in Internations	as will be less than 10 -20-2402), Table 2, levels of radioactive e within (1) the an individual and (2) ration limit for hat Xe-135 is the verted to an equivaler al Commission on
3/4.11.1.2	LIQUID EFFLUENT DOSE		
· · · · · · · · · · · · · · · · · · ·	This CONTROL is provided to implement the requ IV.A of Appendix I, 10 CFR Part 50. The Limiting implements the guides set forth in Section II.A of A provide the required operating flexibility and at the forth in Section IV.A of Appendix I to assure that the liquid effluents will be kept "as low as is reasonably sites with drinking water supplies which can be pot there is reasonable assurance that the operation of the radionuclide concentrations in the finished drinking requirements of 40 CFR 141. The dose calculations implement the requirements in Section III.A of App guides of Appendix I is to be shown by calculations data such that the actual exposure of an individual t unlikely to be substantially underestimated. The eq ODC-2.01 for calculating the doses due to the actual materials in liquid effluents are consistent with the Guide 1.109, and Regulatory Guide 1.113. NUREC calculations consistent with Regulatory Guides 1.10 3.2.8)	irements of Se g Condition for appendix I. The same time imposed water time imposed and the releases of re- y achievable." entially affected he facility will g water that are s in the proced bendix I that con al procedures be hrough approp- uations specified release rates methodology p G-0133 provide 09 and 1.113. ⁽³⁾	ctions II.A, III.A, and Operation the ACTION statement oblement the guides set radioactive material in Also, for fresh water and by plant operations not result in in excess of the ure 1/2-ODC-2.01 onformance with the based on models and triate pathways is and in procedure1/2- of radioactive provided in Regulator as methods for dose 1.1, 3.2.2, 3.2.3, 3.2.5, 3.2.7,
	This CONTROL applies to the release of liquid effl Station, Unit No. 1 or Unit No. 2. These units have the liquid effluents from the shared system are prop that system.	uents for Beav shared radwas ortioned amon	ver Valley Power ste treatment systems, g the units sharing

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#### ATTACHMENT B Page 2 of 2

#### BASES FOR ODCM CONTROLS: LIQUID EFFLUENTS

#### 3/4.11.1.3 LIQUID WASTE TREATMENT SYSTEM

The CONTROL that the appropriate portions of this system be used when specified provides assurance that the releases of radioactive materials in liquid effluents will be kept "as low as is reasonably achievable." This specification implements the requirements of 10 CFR Part 50.36a, General Design Criterion 60 of Appendix A to 10 CFR Part 50 and design objective given in Section II.D of Appendix I to 10 CFR Part 50. The specified limits governing the use of appropriate portions of the liquid radwaste treatment system were specified as a suitable fraction of the dose design objectives set forth in Section II.A of Appendix I, 10 CFR Part 50, for liquid effluents. This specification applies to Beaver Valley Power Station, Unit No. 1 or Unit No. 2.^(3.2.2)

### 3/4.11.1.4 LIQUID HOLDUP TANKS

Restricting the quantity of radioactive material contained in the specified tanks provides assurance that in the event of an uncontrolled release of the tanks' contents, the resulting concentrations would be less than the limits of 10 CFR Part 20, Appendix B, Table 2, Column 2, at the nearest potable water supply and the nearest surface water supply in an unrestricted area.

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	Beaver Valley Power Station	Procedure Nu	umber: 1/2-ODC-3.02
Title: ODCM: Base	es For ODCM Controls	Unit: 1/2 Revision:	Level Of Use: General Skill Reference Page Number:
	ATTACHMENT C Page 1 of 3 BASES FOR ODCM CONTROLS: GASEOU	2 S EFFLUENT	<u> </u>
3/4.11.2.1	GASEOUS EFFLUENT DOSE RATE		
	This CONTROL is provided to ensure that the dose from gaseous effluents from all units on the site will 10 CFR Part 20 for unrestricted areas. The annual d with the concentrations of 10 CFR Part 20, Appendi limits provide reasonable assurance that radioactive effluents will not result in the exposure of an individ within or outside the site boundary, to annual averag limits specified in Appendix B, Table II of 10 CFR I For individuals who may at times be within the site I individual will be sufficiently low to compensate for diffusion factor above that for the site boundary. Th restrict, at all times, the corresponding gamma and b an individual at or beyond the site boundary to $\leq 500$ $\leq 3,000$ mrem/year to the skin. These release rate lin corresponding thyroid dose rate above background of to $\leq 1,500$ mrem/year. ^(3.2.1)	at anytime at be within the ose limits are x B, Table II, material disch ual in an unre concentration Part 20 (10 CF boundary, the any increase e specified re eta dose rates 0 mrem/year to mits also restri f a child via th	the site boundary annual dose limits of the doses associated Column 1. These arged in gaseous estricted area, either ons exceeding the FR Part 20.106(b)). occupancy of the in the atmospheric lease rate limits above background to o the total body or to ict, at all times, the he inhalation pathway
3/4.11.2.2	DOSE, NOBLE GASES		
	This CONTROL is provided to implement the require IV.A of Appendix I, 10 CFR Part 50. The CONTROL in Section II.B of Appendix I. The ACTION statem flexibility and at the same time implement the guide. Appendix I to assure that the release of radioactive m kept "as low as is reasonably achievable." The Surve the requirements in Section III.A of Appendix I that Appendix I be shown by calculational procedures ba the actual exposure of an individual through the appen- substantially underestimated. The dose calculations 2.02 for calculating the doses due to the actual release in gaseous effluents are consistent with the methodo 1.109, and Regulatory Guide 1.111. The equations is provided for determining the air doses at the exclusion upon the historical average atmospheric conditions. for dose calculations consistent with Regulatory Guid specifications applies to the release of gaseous effluents Station, Unit No. 1 or Unit No. 2. ^(3.1.2, 3.2.2, 3.2.5, 3.2.6, 3.2)	rements of Sec DL implement ents provide the set forth in Some naterial in gas eillance Requi- conformance sed on models ropriate pathwe established in se rates of radii logy provided n procedure 1 on area bound NUREG-013 des 1.109 and ents from Beav	ctions II.B, III.A, and s the guides set forth he required operating Section IV.A of eous effluents will be irements implement with the guides of s and data such that rays is unlikely to be procedure 1/2-ODC- oactive noble gases in Regulatory Guide /2-ODC-2.02 are ary, and are based 3 provides methods 1.111. This ver Valley Power
3/4.11.2.3	DOSE, RADIOIODINES, RADIOACTIVE MATI AND RADIONUCLIDES OTHER THAN NOBLI	ERIAL IN PA E GASES	RTICULATE FORM

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Beaver Valley Power Station	Procedure Ni	$\frac{1}{2} ODC = 2 O2$
		1/2-UDC-3.UZ
ODCM: Bases For ODCM Controls	1/2	General Skill Reference
ODCIVI. Bases FOI ODCIVI CONTOIS	Revision:	Page Number
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ATTACHMENT C		
Page 2 of 3		
	EEEL LIENT	re .
DASESTOR ODEM CONTROLS. GASLOUS		
This CONTROL is provided to implement the requand IV.A of Appendix I, 10 CFR Part 50. The CO. Section II.C of Appendix I. ^(3.2.2)	irements of S NTROLS are	Sections II.C, III.A, the guides set forth in
time implement the guides set forth in Section IV.A releases of radioactive materials in gaseous effluen reasonably achievable." The calculational methods requirements implement the requirements in Sectio conformance with the guides of Appendix I be sho based on models and data such that the actual expo appropriate pathways is unlikely to be substantially methods in procedure 1/2-ODC-2.02 are for calcula release rates of the subject materials are consistent Regulatory Guide 1.109, and Regulatory Guide 1.1 for determining the actual doses based upon the his conditions. The release rate specifications for radio particulate form, and radionuclides other than nobl- existing radionuclide pathways to man, in the unres are examined in the development of these calculati- airborne radionuclides, 2) deposition of radionucli subsequent consumption by man, 3) deposition om and meat producing animals graze with consumptio and 4) deposition on the ground with subsequent e applies to radioactive material in particulate form a gases released from Beaver Valley Power Station, 1 326, 32.7)	A of Appendix ts will be kep s specified in on III. A of Ap wn by calcula sure of an indo- underestima ating the dose with the meth 11. These eq storical average biodines, radi e gases are de stricted area. ons are: 1) in des onto vege to grassy area on of the milk xposure of m nd radionucli Unit No. 1 or	A I to assure that the x I to assure that the t "as low as is the surveillance pendix I that ational procedures lividual through ted. The calculational as due to the actual nodology provided in putions also provide ge atmospheric oactive material in pendent on the The pathways which dividual inhalation of etation with as where milk animals and meat by man, an. This CONTROL des other than noble Unit No.2. ^(3.1.2, 3.2.2, 3.2.2)

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	Beaver Valley Power Station	Procedure Nu	1/2-ODC-3.02
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	ATTACHMENT C Page 3 of 3 BASES FOR ODCM CONTROLS: GASEOUS	EFFLUENT	<u> </u>
3/4.11.2.4	GASEOUS RADWASTE TREATMENT SYSTEM		
	The CONTROL that the appropriate portions of these provides reasonable assurance that the releases of radii effluents will be kept "as low as is reasonably achieva implements the requirements of 10 CFR Part 50.36a, Appendix A to 10 CFR Part 50, and design objective a CFR Part 50. The specified limits governing the use of systems were specified as a suitable fraction of the do Sections II.B and II.C of Appendix I, 10 CFR Part 50, specification applies to gaseous radwaste from Beaver or Unit No. 2. ^(3.1.2, 3.2.2)	systems be to oactive mate ble." This s General Des Section II.D of appropriat se design ob for gaseous Valley Pow	used when specified erials in gaseous pecification ign Criterion 60 of of Appendix I to 10 e portions of the jectives set forth in effluents. This ver Station, Unit No.
3/4.11.2.5	<b>BV-1 GASEOUS WASTE STORAGE TANKS</b>		
	Restricting the quantity of radioactivity contained in e assurance that in the event of an uncontrolled release of total body exposure to an individual located at the near two hours immediately following the onset of the release specified limit restricting the quantity of radioactivity was specified to ensure that the total body exposure re- release remained a suitable fraction of the reference va- (a)(1).	ach gas stor of the tanks' rest exclusion ase will not contained in sulting from alue set forth	age tank provides contents, the resulting on area boundary for exceed 0.5 rem. The a each gas storage tan the postulated in 10 CFR 100.11
3/4.11.2.5	<b>BV-2 GASEOUS WASTE STORAGE TANKS</b>		
	Restricting the quantity of radioactivity contained in a waste storage tanks provides assurance that in the even	ny connected nt of an unco	d group of gaseous

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Beaver Valley Power Station		Procedure Ni	umber: 1/2-ODC-3.02
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### ATTACHMENT D Page 1 of 1 BASES FOR ODCM CONTROLS: TOTAL DOSE

# 3/4.11.4 <u>TOTAL DOSE</u>

This CONTROL is provided to meet the dose limitations of 40 CFR Part 190 that have been incorporated into 10 CFR Part 20 by 46 FR 18525. The CONTROL requires the preparation and submittal of a Special Report whenever the calculated doses due to releases of radioactivity and to radiation from uranium fuel cycle sources exceed 25 mrems to the whole body or any organ, except the thyroid, which shall be limited to less than or equal to 75 mrems. For sites containing up to 4 reactors, it is highly unlikley that the resultant dose to a MEMBER OF THE PUBLIC will exceed the dose limits of 40 CFR Part 190 if the individual reactors remain within twice the dose design objectives of Appendix I, and if direct radiation doses from the units (including outside storages tanks, etc.) are kept small. The Special Report will describe a course of action that should result in the limitation of the annual dose to a MEMBER OF THE PUBLIC to within the 40 CFR Part 190 limits. For the purposes of the Special Report, it may be assumed that the dose commitment to the MEMBER OF THE PUBLIC from other uranium fuel cycle sources is negligible, with the exception that dose contributions from other nuclear fuel cycle facilities at the same site or within a radius of 5 miles must be considered. If the dose to any MEMBER OF THE PUBLIC is estimated to exceed the requirements of 40 CFR Part 190, the Special Report with a request for a variance (provided the release conditions resulting in violation of 40 CFR Part 190 have not already been corrected), in accordance with the provisions of 40 CFR 190.11 and 10 CFR 20.405c, is considered to be a timely request and fulfills the requirements of 40 CFR Part 190 until NRC staff action is completed. The variance only relates to the limits of 40 CFR Part 190, and does not apply in any way to the other requirements for dose limitation of 10 CFR Part 20, as addressed in ODCM CONTROL 3.11.1.1 and 3.11.2.1. An individual is not considered a MEMBER OF THE PUBLIC during any period in which he/she is engaged in carrying out any operation that is part of the nuclear fuel cycle.^(3.1.3, 3.2.1, 3.2.2, 3.2.4)

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Title: ODCM: Ba	ses For ODCM Controls	Unit: 1/2 Revision:	Level Of Use: General Skill Reference Page Number:
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BASES	FOR ODCM CONTROLS: RADIOLOGICAL ENVI PROGRAM (REMP)	RONMENTA	L MONITORING
3/4.12.1	MONITORING PROGRAM		
	The radiological monitoring program required by the measurements of radiation and of radioactive mater for those radionuclides which lead to the highest po MEMBER(S) OF THE PUBLIC resulting from the program thereby supplements the radiological effluent that the measurable concentrations of radioactive m not higher than expected on the basis of the effluent environmental exposure pathways. The initially spe effective for at least the first 3 years of commercial program changes may be initiated based on operation	is CONTROL ials in those ex- tential radiation station operation ent monitoring aterials and level measurements ecified monitor operation. For onal experience	provides posure pathways and n exposures of on. This monitoring program by verifying vels of radiation are s and modeling of the ring program will be llowing this period, e.
	The detection capabilities required by ODCM Cont the-art for routine environmental measurements in i for drinking water meet the requirements of 40 CFR	rol 3.12.1, Tab ndustrial labor 2.141. ^(3.1.3, 3.2.3)	le 4.12-1 are state-of- atories. The LLD's
3/4.12.2	LAND USE CENSUS		
	ODCM CONTROL 3.12.2 is provided to ensure that areas are identified and that modifications to the mo- required by the results of this census. The best surve door survey, aerial survey, or by consulting with loc- used. This census satisfies the requirements of Sect Part 50. Restricting the census to gardens of greater assurance that significant exposure pathways via lear monitored since a garden of this size is the minimur (26 kg/year) of leafy vegetables assumed in Regulat by a child. To determine this minimum garden size used: 1) that 20% of the garden was used for growin similar to lettuce and cabbage), and 2) a vegetation	at changes in the point oring progree ey information cal agriculture ion IV.B.3 of <i>J</i> of than 500 squate fy vegetables in required to p cory Guide 1.10 , the following ing broad leaf y yield of 2 kg/s	he use of unrestricted ams are made if a from the door-to- authorities shall be Appendix I to 10 CFR are feet provides will be identified and produce the quantity 09 for consumption assumptions were vegetation (i.e., square meter. ^(3.1.3, 3.2.2)
3/4.12.3	INTERLABORATORY COMPARISON PROGRA	M	
	The ODCM CONTROL 3.12.3 for participation in a Program is provided to ensure that independent chec the measurements of radioactive material in environ performed as part of a quality assurance program fo to demonstrate that the results are reasonably valid. ⁽¹⁾	an Interlaborate cks on the prec mental sample r environmenta 3.1.3)	ory Comparison ision and accuracy of matrices are al monitoring in order
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Unit 1/2

#### 1/2-ODC-3.03

# **ODCM:** Controls for RETS and REMP Programs

# Document Owner Manager, Nuclear Environmental and Chemistry

Revision Number	8
Level Of Use	General Skill Reference
Safety Related Procedure	Yes
Effective Date	05/30/09

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ATTACHMENT U ODCM CONTI	<b>ROLS: ANNUAL RETS REPO</b>	RTS	
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	Beaver Valley Power Station		Procedure Number:		
Title:	Deaver valiey i ower Station	l Unit:	/2-ODC-3.03 Level Of Use:		
1100		1/2	General Skill Reference		
ODCM	Controls for RETS and REMP Programs	Revision: 8	Page Number: <u>3 of 86</u>		
1.0	PURPOSE				
1.1	This procedure includes selected Definitions and Tables as deline Technical Specifications and selected Applicability and Surveillar as delineated in T.S. 3.0.	eated in Se nce Requir	ction 1 of the ement statements		
1.1.	1 Prior to issuance of this procedure, these items were located ODCM, and were added to this procedure for reference pur currently described in the Technical Specifications.	l in Append poses, ever	lix C of the old n though they are		
1.2	This procedure contains the controls for the Radiological Effluer (RETS) that were transferred from the Technical Specifications 1A-188/2A-70, and in accordance with Generic Letter 89-01 and	nt Technica per Unit 1/ 1 NUREG-	al Specification 2 Amendments 1301. ^(3.2.10)		
1.2.	Prior to issuance of this procedure, these items were located ODCM.	l in Append	lix C of the old		
1.3	This procedure contains the reporting requirements for the Radio Report and the Annual Radiological Environmental Operating R from the Technical Specifications per Unit 1/2 Amendments 1A- with Generic Letter 89-01 and NUREG-1301. ^(3.2.10)	pactive Eff eport that v 188/2A-70	uent Release were transferred and in accordance		
1.3.	Prior to issuance of this procedure, these items were located ODCM.	l in Append	lix E of the old		
1.4	This procedure contains the controls for Radiation Monitoring In transferred from the Technical Specification per Unit 1/2 Amend accordance with NUREG-1431. ^(3.2.11)	nstrumenta ments 246,	tion that were /124, and in		
1.5	This procedure contains the controls for Liquid Holdup Tank Ac Decay/Storage Tank Activity Limits that were transferred from t per Unit 1/2 Amendment 250/130, and in accordance with NUR	tivity Limi he Technic EG-1431. ⁽³	ts and for Gas al Specification		
1.6	This procedure provides the Radiological Effluent Controls and required for T.S. 5.5.1, T.S. 5.5.2, T.S. 5.5.8, T.S. 5.6.1, and T.	Reporting 3 S. 5.6.2.	Requirements		
2.0	<u>SCOPE</u>				
2.1	This procedure is applicable to all station personnel that are qual described and referenced in this procedure.	ified to per	form activities as		
3.0	REFERENCES AND COMMITMENTS				
3.1	References				
3.1.	1 1/2-ODC-2.01, ODCM: Liquid Effluents				
3.1.	2 1/2-ODC-2.02, ODCM: Gaseous Effluents				

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3.1.3	1/2-ODC-3.02, ODCM: Bases for ODCM Controls	;	
3.1.4	Unit 1/2 Technical Specification 6.8.6, including Am 137) Implemented August 7, 1995.	endments 188/70	(LAR 1A-175/2A-
3.1.5	Unit 1/2 Technical Specification 3.3.3.1, including A 287/2A-159) Implemented April 11, 2002	mendments 246/1	124 (LAR 1A-

- Unit 1/2 Technical Specification 3.11.1.4, 3.11.2.5, 6.8.6 and 6.9.3, including 3.1.6 Amendments 250/130 (LAR 1A-291/2A-163) Implemented August 7, 2002
- 3.1.7 1/2-ADM-1640, Control of the Offsite Dose Calculation Manual
- 3.1.8 1/2-ADM-0100, Procedure Writer's Guide
- 3.1.9 · NOP-SS-3001, Procedure Review and Approval
- 3.1.10 CR 981489, ODCM Table 4.11-2 Row A (Waste Gas Storage Tank Discharge). CA-01, Revise Appendix C of the ODCM (Table 4.11-2) to add clarification as to where and when tritium samples are to be obtained for GWST discharges.
- CR 981490, ODCM Table 4.11-2 Note e, and Related Chemistry Department 3.1.11 Procedures. CA-01, Revise Appendix C of the ODCM (Table 4.11-2, note e) to specify the proper tritium sample point.
- 3.1.12 CR 993021, Apparent failure to test RM-1DA-100 trip function as required by ODCM. No ODCM changes are required for this CR.
- CR 001682, ODCM Action 28 Guidance. CA-02, Revise Appendix C of the ODCM 3.1.13 (Table 3.3-13, Action 28) to differentiate actions associated with Inoperable Process Flow Rate Monitors vs. Sample Flow Rate Monitors.
- 3.1.14 CR02-05711, TS and ODCM changes not reflected in 10M.54.3.L5 Surveillance Log. CA-01, Revise 1/2-ODC-3.03 to add a requirement for applicable station groups notification of pending ODCM changes.
- CR03-06123, Enhance Table 3.3-6 of 1/2-ODC-3.03 to Add More Preplanned Method of 3.1.15 Monitoring. CA-01, Revise Table 3.3-6 and Table 4.3-3 to allow use of Eberline SPING Channel 5 as an additional  $2^{nd}$  PMM when the Unit 1 Mid or High Range Noble Gas Effluent Monitors are Inoperable.
- CR03-06281, Gaseous Tritium Sampling Required by ODCM (1/2-ODC-3.03) Unclear 3.1.16 for Chemistry. CA-01, Revise procedure Attachment K Table 4.11-2 for RP & Chemistry sampling of Gaseous Effluent Pathways to show which effluent pathways need sampled for compliance to ODCM Control 3.11.2.1 requirements.

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	Beaver Valley Power Station	Procedure Nu	1/2-ODC-3.03	
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3.1.17	CR03-07487, Results of NQA Assessment of the Radiologi 01, Revise Calculation Package No. ERS-ATL-95-007 to c Supply" per guidance presented in NUREG-0800 SRP 15.7 ODC3.03 Control 3.11.1.4 to update the activity limits for t	cal Effluer larify the t '.3. CA-0 the outside	nts Program. CA- term "Surface Water 5, Revise 1/2- e storage tanks.	
3.1.18	CR03-07668, Benchmark Effluent & Environmental Progra 13 th REMP/RETS Workshop. CA-01, Evaluate procedure reduce the amount of Effluent Samples obtained during a po	ims VS Pa Attachme ower trans	pers Presented at nt K Table 4.11-2 to sient.	
3.1.19	CR03-09288, LAR 1A-321 & 2A-193, Increased Flexibility Review LAR 1A-321/2A-193 to identify the affected Rad E manuals, and applicable plant modification documents that support implementing the LAR.	v in Mode Effluent prowing will need t	Restraints CA-19, ocedures, programs, o be revised to	
3.1.20	CR03-09959, RFA-Rad Protection Provide Clarification to Sample. CA-01, Revise ODCM procedure 1/2-ODC-3.03 . note c & note e) to allow sampling of the appropriate buildi	ODCM 1 Attachmer ng atmosp	/Day Air Tritium nt K (Table 4.11-2 ohere.	
3.1.21	CR03-11726, Typographical Error Found in ODCM 3.11.2 procedure 1/2-ODC-3.03, Attachment O, Control 3.11.2.5 error. Specifically, the final word in Action (a) needs change	.5. CA-0 to correct ged from "	1, Revise ODCM a typographical nad" to "and".	
3.1.22	CR04-01643, Procedure Correction – Typographical Error Revise ODCM procedure 1/2-ODC-3.03, Attachment F, (T correct a typographical error. Specifically, the Asset Numb used for measurement of sample flow (from the Alternate S changed from [PI-1GW-13] to [PI-1GW-135].	in the OD able 3.3-1 er for the ampling D	CM. CA-01, 3 and 4.3-13) to Vacuum Gauge Device) needs	
3.1.23	CR04-02275, Discrepancies in Table 3.3-13 of the ODCM. procedure 1/2-ODC-3.03, Attachment F, (Table 3.3-13 and that the "Sampler Flow Rate Monitors are the devices used Sampling".	CA-01, I 4.3-13) to for "Parti	Revise ODCM o add clarification culate and Iodine	
3.1.24	Unit 1 Technical Specification Amendment No. 275 (LAR 1 No. DPR-66. This amendment to the Unit 1 license was ap July 19, 2006.	IA-302) to proved by	o License the NRC on	
3.1.25	Vendor Calculation Package No. 8700-UR(B)-223, Impact Conversion, Power Uprate, and Alternative Source Terms of Radiation Monitors at Unit 1.	of Atmos on the Ala	pheric Containment rm Setpoints for the	
3.1.26	Engineering Change Package No. ECP-04-0440, Extended	Power Up	orate.	
3.1.27	CR 06-04908, Radiation Monitor Alarm Setpoint Discrepar procedure 1/2-ODC-3.03 to update the alarm setpoints of [ [RM-1GW-109] for incorporation of the Extended Power U Amendment No. 275.	ncies. CA RM-1VS- Jprate per	-03, revise ODCM 110] and Unit 1 TS	

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3.1.28	Calculation Package No. ERS-MPD-93-007, BVPS-1 Gase Emergency Action Levels.	ous Radioa	ctivity Monitor
3.1.29	SAP Order 200197646-0110: Revise ODCM procedure 1/2 3.06.001, 1/2-ENV-05-01, Form 1/2-HPP-3.06.001.F05 and incorporate revised outside liquid storage tank activity limits ERS-ATL-95-007, R2.	ODC-3.03, d Form 1/2 s via Calcul	1/2-HPP- -ENV-05.1.F05 to ation Package No.
3.1.30	CR06-04944: ODCM 3.03 Attachment E conflict between A Statement. CA-01; revise ODCM procedure 1/2-ODC-3.03 Applicability for tank level indicating devices is during addit	Applicability , Attachme ions to the	y and Action int E to clarify tank.
3.1.31	CR05-03306: Incorporated Improved Technical Specification programmatic controls for BV-2 Noble Gas Effluent Steam [2MSS-RQ101B] and [2MSS-RQ101C] from the Technical procedure 1/2-ODC-3.03 (Attachment D Tables 3.3-6 and 4 Unit 1/2 Technical Specification Amendments No. 278/161.	ons. This in Monitors [ Specificati 1.3-3). This	cludes transfer of 2MSS-RQ101A], ons to ODCM s was permitted via
3.1.32	T.S. 5.5.1		
3.1.33	T.S. 5.5.2		
3.1.34	T.S. 5.5.8		
3.1.35	T.S. 5.6.1		
3.1.36	T.S. 5.6.2		
3.1.37	SAP Order 200240681: Revise ODCM procedure 1/2-ODC Table 3.3-12) to add an alternate Action when the primary F Device [FT-1CW-101-1] is not OPERABLE. The alternate measurements (as described in 1MSP-31.06-I) to determine during liquid effluent releases.	-3.03 (Atta Flow Rate M Action (25 a total dilu	chment E Aeasurement A) uses local tion flow rate
3.1.38	CR07-12924 and SAP Order 200247228-0410: Revise ODC (Attachment F Tables 3.3-13 and 4.3-13) to clarify the Func Sampler Flow Rate Monitors for the BV-2 gaseous effluent Specifically, the procedure was changed to refer to Function [2HVS-FIT101-1] instead of [2HVS-FIT101], [2RMQ-FIT2 [2RMQ-FIT301], [2HVL-FIT112-1] instead of [2HVL-FIT instead of [2RMQ-FIT303].	CM procedu tional Loca release path al Locatior 301-1] inste 112], and [	are 1/2-ODC-3.03 ation of the hways. 1 ead of 2RMQ-FIT303-1]
3.2 <u>Co</u>	mmitments		
3.2.1	10 CFR Part 20, Standards for Protection Against Radiation	l	
3.2.2	10 CFR Part 50, Domestic Licensing of Production and Util	ization Fac	ilities

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3 7 3	40 CFR Part 1/1		/ 01 80	
3.2.4	40 CFR Part 190, Environmental Radiation Protection S Operations.	tandards For	Nuclear Power	
3.2.5	Regulatory Guide 1.109, Calculation Of Annual Doses T Of Reactor Effluents For The Purpose Of Evaluating Co Appendix I, Revision 1, October 1977	'o Man From mpliance Wit	Routine Releases th 10 CFR Part 50,	
3.2.6	Regulatory Guide 1.111, Methods For Estimating Atmos Dispersion Of Gaseous Effluents In Routine Releases Fro Reactors, Revision 1, July 1977	spheric Trans om Light-Wa	sport And ater-Cooled	
3.2.7	Regulatory Guide 1.113, Estimating Aquatic Dispersion And Routine Reactor Releases For The Purpose Of Impl	Of Effluents ementing Ap	From Accidental pendix I, April 1977	
3.2.8	NUREG-0133, Preparation of Radiological Effluent Technical Specifications for Nuclear Power Plants, October 1978			
3.2.9	NUREG-0737, Clarification of TMI Action Plan Requirements, October 1980			
3.2.10	NUREG-1301, Offsite Dose Calculation Manual Guidan Effluent Controls For Pressurized Water Reactors (Gene No. 1)	ce; Standard ric Letter 89	Radiological -01, Supplement	
3.2.11	NUREG-1431, Standard Technical Specifications - West	inghouse Pla	ants Specifications	
3.2.12	NUREG-0800, Standard Review Plan, Postulated Radio Containing Tank Failures, July 1981	active Releas	ses Due to Liquid-	
3.2.13	Licensee Response to NRC Unresolved Item 50-334/83- Particle Distribution Evaluation showed that the Licensee factors to determine particulate activity in samples obtain pathways.	30-05. The let must continued from the	Radiation Monitor ue to use correction effluent release	
4.0 <u>RF</u>	CORDS AND FORMS			
4.1 <u>Re</u>	cords			
4.1.1	Any calculation supporting ODCM changes shall be docure retrievable document (e.g.; letter or calculation package) number.	imented, as a with an appr	appropriate, by a ropriate RTL	
4.2 <u>For</u>	rms			
421	None			

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# 5.0 PRECAUTIONS AND LIMITATIONS

- 5.1 The numbering of each specific ODCM Control, ODCM Surveillance Requirement and ODCM Table contained in this procedure does not appear to be sequential. This is intentional, as all ODCM Control, ODCM Surveillance Requirement and ODCM Table numbers remained the same when they were transferred from the Technical Specifications. This was done in an effort to minimize the amount of plant procedure changes and to eliminate any confusion associated with numbering changes.
- 5.2 The numbering of each specific ODCM Report contained in this procedure does not appear to be sequential. This is intentional, as all ODCM Report numbers remained the same when they were transferred from the Technical Specifications. This was done in an effort to minimize the amount of plant procedure changes and to eliminate any confusion associated with numbering changes.

# 6.0 ACCEPTANCE CRITERIA

- 6.1 Any change to this procedure shall contain sufficient justification that the change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR 50, and not adversely impact the accuracy or reliability of effluent dose or setpoint calculation.^(3.2.10)
  - 6.1.1 All changes to this procedure shall be prepared in accordance with 1/2-ADM-0100^(3.1.8) and 1/2-ADM-1640.^(3.1.7)
  - 6.1.2 Pending changes to this procedure shall be provided to applicable station groups. For example, <u>IF</u> Control 3.11.1.1 is being changed, <u>THEN</u> the proposed changes shall be provided to the applicable station groups (i.e.; owner of the procedures), identified in the MATRIX of ODCM procedure 1/2-ODC-1.01. This will allow the station groups to revise any affected procedures concurrent with the ODCM change.^(3.1.14)
  - 6.1.3 All changes to this procedure shall be reviewed and approved in accordance with NOP-SS-3001 ^(3.1.9) and 1/2-ADM-1640.^(3.1.7)

# 7.0 **PREREQUISITES**

7.1 The user of this procedure shall be familiar with ODCM structure and content.

# 8.0 <u>PROCEDURE</u>

- 8.1 See ATTACHMENT A for a Table of Operational Modes and a Table of Frequency Notation.
- 8.2 See ATTACHMENT B for a list of defined terms used throughout the ODCM.
- 8.3 See ATTACHMENT C thru ATTACHMENT S for a complete description of all ODCM Controls.
- 8.4 See ATTACHMENT T for a description of the Annual Report required by the REMP Controls.

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8.5	See ATT Controls	ACHMENT	U for a desci	ription of the Ann	ual Report	required by	y the RETS
				- END -			
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ATTACHMENT A Page 1 of 2 ODCM CONTROLS: OPERATIONAL MODES AND FREQUENCY NOTATION							
	<u>TABLE 1.1</u>						
	MODES						
MODE	TITLE	REACTIVITY CONDITION (k _{eff} )	% RATED THERMAI POWER ^(a)	) L )	AVERAGE REACTOR COOLANT TEMPERATURE (°F)		
1	Power Operation	≥ 0.99	> 5		NA		
2	Startup	≥ 0.99	≤ 5		NA		
3	Hot Standby	< 0.99	NA		≥ 350		
4	Hot Shutdown ^(b)	< 0.99	NA		$350 > T_{avg} > 200$		
5	Cold Shutdown ^(b)	< 0.99	NA		≤ 200		
6	Refueling ^(c)	NA	NA		NA		

(a) Excluding decay heat.
(b) All reactor vessel head closure bolts fully tensioned.
(c) One or more reactor vessel head closure bolts less than fully tensioned.

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	ODCM CONTROLS: OP	QUENCY 1	NOTATION		
		TABLE 1.2			
		FREQUENCY NOTATION			
	NOTATION	FREQUENCY			
	S	At least once per 12 hours			
	D	At least once per 24 hours			
	W	At least once per 7 days			
	М	At least once per 31 days			
	Q	At least once per 92 days			
	SA	At least once per 184 days			
	R	At least once per 18 months			
	S/U	Prior to each reactor startup			
	Р	Completed prior to each release			
	N.A.	Not applicable			

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ATTACHMENT B				
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ODCM CONTROLS: DEFI	NITIONS			

The defined terms of this section appear in capitalized type and are applicable throughout these CONTROLS.

<u>ACTION</u> shall be those additional requirements specified as corollary statements to each principal CONTROL and shall be part of the CONTROLS.

<u>CHANNEL CALIBRATION</u> shall be the adjustment, as necessary, of the channel output such that it responds with the necessary range and accuracy to known values of the parameter which the channel monitors. The CHANNEL CALIBRATION shall encompass the entire channel including the sensor and alarm and/or trip functions, and shall include the CHANNEL OPERATIONAL TEST. The CHANNEL CALIBRATION may be performed by any series of sequential, overlapping, or total channel steps such that the entire channel is calibrated.

<u>CHANNEL CHECK</u> shall be the qualitative assessment of channel behavior during operation by observation. This determination shall include, where possible, comparison of the channel indication and/or status with other indications and/or status derived from independent instrument channels measuring the same parameter.

<u>CHANNEL OPERATIONAL TEST</u> shall be the injection of a simulated signal into the channel as close to the primary sensor as practicable to verify OPERABILITY including alarm and/or trip functions.

<u>FREQUENCY NOTATION</u> specified for the performance of Surveillance Requirements shall correspond to the intervals defined in Table 1.2.

<u>GASEOUS RADWASTE TREATMENT SYSTEM</u> is any system designed and installed to reduce radioactive gaseous effluents by collecting primary coolant system offgases from the primary system and providing for delay or holdup for the purpose of reducing the total radioactivity prior to release to the environment.

<u>MEMBER(S) OF THE PUBLIC (10 CFR 20 and/or 10 CFR 50)</u> means any individual except when that individual is receiving an occupational dose. This definition is used to show compliance to ODCM CONTROL 3.11.1.1, 3.11.1.4, 3.11.2.1 and 3.11.2.5 that are based on 10 CFR Part 20. This definition is also used to show compliance to ODCM Controls 3.11.1.2, 3.11.1.3, 3.11.2.2, 3.11.2.3 and 3.11.2.4 that are based on 10 CFR Part 50.

<u>MEMBER(S) OF THE PUBLIC (40 CFR 190)</u> means any individual that can receive a radiation dose in the general **environment**, whether he may or may not also be exposed to radiation in an occupation associated with a nuclear fuel cycle. However, an individual is not considered a MEMBER OF THE PUBLIC during any period in which he is engaged in carrying out any operation which is part of the nuclear fuel cycle. This definition is used to show compliance to an ODCM CONTROL 3.11.4.1 that is based on 40 CFR Part 190.

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# ATTACHMENT B Page 2 of 3 ODCM CONTROLS: DEFINITIONS

<u>OFFSITE DOSE CALCULATION MANUAL</u> (ODCM) shall contain the methodology and parameters used in the calculation of offsite doses resulting from radioactive gaseous and liquid effluents, in the calculation of gaseous and liquid effluent monitoring Alarm/Trip Setpoints, and in the conduct of the Environmental Radiological Monitoring Program. The ODCM shall also contain (1) the Radioactive Effluent Controls and Radiological Environmental Monitoring Programs required by T.S. 5.5.2 and (2) descriptions of the information that should be included in the Radiological Environmental Operating and Annual Radioactive Effluent Release Reports that are also required by T.S. 5.6.1 and T.S. 5.6.2.

<u>OPERABLE/OPERABILITY</u> A system, subsystem, train, component, or device shall be <u>OPERABLE</u> or have <u>OPERABILITY</u> when it is capable of performing its specified function(s). Implicit in this definition shall be the assumption that all necessary attendant instrumentation, controls, normal and emergency electric power sources, cooling or seal water, lubrication or other auxiliary equipment that are required for the system, subsystem, train, component, or device to perform its function(s) are also capable of performing their related safety function(s).

<u>MODE</u> shall correspond to any one inclusive combination of core reactivity condition, power level, and average reactor coolant temperature specified in ATTACHMENT A Table 1.1.

<u>PURGE</u> or <u>PURGING</u> is the controlled process of discharging air or gas from a confinement to maintain temperature, pressure, humidity, concentration, or other operating conditions, in such a manner that replacement air or gas is required to purify the confinement.

<u>RATED THERMAL POWER</u> shall be a total reactor core heat transfer rate to the reactor coolant of 2900 MWt.

<u>REPORTABLE EVENT</u> shall be any of those conditions specified in Section 50.73 to 10 CFR Part 50.

SHUTDOWN means reactor power change to 0% power.

<u>SITE BOUNDARY</u> shall be that line beyond which the land is neither owned, nor leased, nor otherwise controlled by the licensee. The Figure for Liquid Effluent Site Boundary is contained in 1/2-ODC-2.01. The Figure for Gaseous Effluent Site Boundary is contained in 1/2-ODC-2.02.

STARTUP means reactor power change from 0% power.

<u>SOURCE CHECK shall</u> be the qualitative assessment of channel response when the channel sensor is exposed to a radioactive source.

THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.

<u>UNRESTRICTED AREA</u> means any area access to which is neither limited nor controlled by the licensee.

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# ATTACHMENT B Page 3 of 3 ODCM CONTROLS: DEFINITIONS

<u>VENTILATION EXHAUST TREATMENT SYSTEM</u> is any system designed and installed to reduce gaseous radioiodine or radioactive material in particulate form in effluents by passing ventilation or vent exhaust gases through charcoal absorbers and/or HEPA filters for the purpose of removing iodines or particulates from the gaseous exhaust stream prior to the release to the environment (such a system is not considered to have any effect on noble gas effluents). Engineered Safety Feature (ESF) atmospheric cleanup systems are not considered to be VENTILATION EXHAUST TREATMENT SYSTEM components.

<u>VENTING</u> is the controlled process of discharging air or gas from a confinement to maintain temperature, pressure, humidity, concentration or other operating conditions, in such a manner that replacement air or gas is not provided or required during VENTING. Vent, used in system names, does not imply a VENTING process.
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	ODCM CONTROLS: APPLICABILITY AND SURVEILLA	NCE REQU	JIREMENTS			
CONT	TROLS: APPLICABILITY					
		1	,,			
3.0.1	ODCM CONTROLS shall be met during the MODES or other Applicability; except as provided in ODCM CONTROL 3.0.2	conditions	specified in the			
3.0.2	Upon discovery of a failure to meet the ODCM CONTROL, the requirements shall be met, except as provided in ODCM CONT CONTROL is met or no longer applicable prior to expiration of completion of the ODCM ACTION requirements is not require	e associated ROL 3.0.5 f the specifi d unless ot	d ODCM ACTION If the ODCM ied time intervals, herwise stated.			
3.0.3	When an ODCM CONTROL is not met and the associated ODCM ACTIONS are not met, an associated ACTION is not provided, or if directed by the associated ACTIONS, the unit shall b placed in a MODE or other specified condition in which the ODCM CONTROL is not applicable Action shall be initiated within 1 hour to place the unit, as applicable, in:					
·	<ol> <li>MODE 3 within 7 hours,</li> <li>MODE 4 within 13 hours, and</li> <li>MODE 5 within 37 hours.</li> </ol>					
	Where corrective measures are completed that permit operation CONTROL or ACTIONS, completion of the actions required b required.	in accorda y ODCM (	ance with the ODCM CONTROL 3.0.3 is not			
	Exceptions to these requirements are stated in the individual OI	DCM CON	TROLS			
3.0.4	When an ODCM CONTROL is not met, entry into an MODE of Applicability shall only be made:	or specified	condition in the			
	a. When the associated ODCM ACTIONS to be entered perm MODE or other specified condition in the Applicability for a	it continue an unlimite	d operation in the d period of time, or			
	b. After performance of a risk assessment addressing inoperable consideration of the results, determination of the acceptability specified condition in the Applicability, and establishment of appropriate; exceptions to this ODCM CONTROL are state CONTROLS, or	le systems ty of enteri Frisk mana ed in the ind	and components, ing the MODE or other gement actions, if dividual ODCM			
	c. When an allowance is stated in the individual value, paramet	ter, or othe	r ODCM CONTROL.			
	This ODCM CONTROL shall not prevent changes in MODES Applicability that are required to comply with ODCM ACTION of the unit.	or other sp S or that a	ecified conditions in the re part of a shutdown			

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3.0.5	Equipment removes be returned to set demonstrate its C	ved from service o rvice under admini )PERABILITY or FROL 3.0.1 for the	or declared inoper istrative control s the OPERABIL	able to compl olely to perfor ITY of other of	y with O rm testin equipmender admi	DCM ACT g required t nt. This is a	IONS may o n exceptio
	perform the testin	ng required to dem	nonstrate OPERA	BILITY.			
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	ODCM CONTROLS: APPLICABILITY AND SURVEILLA	ANCE REQ	UIREMENTS
CONT			
CON	ROLS: SURVEILEANCE REQUIREMENTS		
4.0.1	Surveillance Requirements shall be met during the MODES of individual ODCM CONTROLS unless otherwise stated in the Failure to meet an ODCM Surveillance, whether such failure is performance of the Surveillance or between performance of the meet the ODCM CONTROL. Failure to perform a Surveillant shall be failure to meet the ODCM CONTROL except as prov Requirement 4.0.3. Surveillances do not have to be performe variables outside specified limits.	r other condi ODCM Sur is experience ne Surveillan ace within the vided in ODC d on inopera	tions specified for veillance Requiremen d during the ce, shall be failure to e specified Frequency CM Surveillance ble equipment or
4.0.2	The specified Frequency for each ODCM Surveillance Requir performed within $\pm 1.25$ times the interval specified in the Freq previous performance or as measured from the time a specifie	ement is met quency, as m d condition d	if the Surveillance is easured from the of the Frequency is more
	For Frequencies specified as once, the above interval extens	sion does not	арріу.
	If a Completion Time requires periodic performance or "once extension applies to each performance after the initial perform	per" basis ance.	, the above Frequency
	Exceptions to this Specification are stated in the individual Sp	ecifications.	
4.0.3	If it is discovered that an ODCM Surveillance was not perform then compliance with the requirement to declare the ODCM Of from the time of discovery, up to 24 hours or up to the limit of whichever is greater. This delay period is permitted to allow p Surveillance. A risk evaluation shall be performed for any OD than 24 hours and the risk impact shall be managed.	ned within it CONTROL r of the specific performance DCM Surveil	s specified Frequency ot met may be delaye ed surveillance interva of the ODCM lance delayed greater
	If the ODCM Surveillance is not performed within the delay p immediately be declared not met, and the applicable ODCM A	eriod, the O CTION(s) r	DCM CONTROL mu nust be entered.
	When the ODCM Surveillance is performed within the delay r	period and th	

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		UDCM CON I	KOLS: A	PPLICABILI	I Y AND SU	KVEILLAN	ICE REQU	JIREMEN	15
	4.0.4	Entry into a M only be made w interval, excep CONTROL is specified condi 3.0.4. This pro Applicability, t shutdown of th	ODE or oth when the Ol t as provide not met due tion in the povision shal hat are require unit.	her specified DCM Surveil ed by ODCM e to Surveilla Applicability l not prevent uired to comp	condition in the lances have be Surveillance nces not having shall only be entry into Mo oly with ODC	he Applicab een met with Requiremen ng been met made in acc ODES or ot M ACTION	ility of a O hin their al t 4.0.3. W , entry into ordance w her specific l requireme	DCM CON lowed surv /hen an OD o a MODE ith ODCM ed conditio ents or that	ITROL shall eillance CM or other CONTROL ns in the are part of a
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	ODCM CONTROLS: RADIATION MONITORING II	NSTRUMEN	TATION
CONTROL		ΓΟΙΙΛΙΕΝΤΑ	
3.3.3.1	The radiation monitoring instrumentation channels should be observed as the operable with their alarm/trip setpoints within the	own in Table specified lin	3.3-6 shall be nits.
APPLICAB	ILITY: As shown in Table 3.3-6.		
<u>ACTION:</u>			
a.	With a radiation monitoring channel alarm/trip setpoin ODCM Control 3.3.3.1, Table 3.3-6, adjust the setpo or declare the channel inoperable.	nt exceeding int to within	the value shown in the limit within 4 hours
b.	With one or more radiation monitoring channels inope ODCM Control 3.3.3.1, Table 3.3-6.	erable, take t	he ACTION shown in
С.	The provisions of ODCM Control 3.0.3 are not applied	cable.	
SURVEILL	ANCE REQUIREMENTS		
4.3.3.1	Each radiation monitoring instrumentation channel sh the performance of the CHANNEL CHECK, CHANN CHANNEL OPERATIONAL TEST operations durir shown in ODCM Control 3.3.3.1, Table 4.3-3.	all be demon NEL CALIB ng the modes	strated OPERABLE by RATION and and at the frequencies
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ODCM CONTRO	OLS: RADIA	TION MONIT	ORING INSTI	RUMENT	ΓΑΤΙΟΝ	
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BV-1 R	ΔΠΙΑΤΙΟΝ Ν	<u>TADLU J.J-</u> MONITORING	<u>o</u> FINSTRI MET		V	
Pri = Primary I	Instruments.	PMM = Prer	planned Method	1 of Moni	toring ^(a)	
	MINIMUM	fright		N	OMINAL	
<b>INSTRUMENT</b>	CHANNELS <u>OPERABLE</u>	APPLICABLE <u>MODES</u>	SETPOINT ⁽¹⁾	MEA	SUREMENT <u>RANGE</u>	<u>ACTION</u>
1. Noble Gas Effluent Monitors - S	SPINGS ⁽⁴⁾					
a. Reactor Building/SLCRS (CV Mid Banga Nable Cas	V-1; Also called	Elevated Releas	ie)			35
Pri: (RM-1VS-110 Ch 7)	(1)	1, 2, 3, 00 4	≤ 1660 cpm	1E-3 to	1E+3 uCi/cc ⁽²⁾	55
1st PMM: (RM-1VS-112 SA-1 2pd PMM: (RM-1VS-107B, or	10) - 110 Ch 5)		-			
3rd PMM: Grab Sampling eve	ry 12					
hours		10004				25
High Range Noble Gas Pri: (RM-1VS-110 Ch 9)	(1)	1, 2, 3, & 4	NA	1E-1 to	1E+5 uCi/cc ⁽²⁾	35 35
1st PMM: (RM-1VS-112 SA-9				·		 ,
2nd PMM: (RM-1VS-107B, or 3rd PMM: Grab Sampling eve	110 Ch 5) ry 12					
hours	-		-			
b. Auxiliary Building Ventilatio	n System (VV-1	l; Also called Ver	ntilation Vent)			25
Pri: (RM-1VS-109 Ch 7)	(1)	1, 2, 3, <b>&amp;</b> 4	≤ 1390 cpm	1E-3 to	1E+3 uCi/cc ⁽²⁾	55
Ist PMM: (RM-IVS-III SA-J	10) 100 Ch 5)		· ·			
3rd PMM: (RM-1VS-101B, or 3rd PMM: Grab Sampling eve	ry 12					
hours						
High Range Noble Gas Pri: (RM-1VS-109 Cb 9)	(1)	1, 2, 3, & 4	NA	1F-1 to	$1E+5 uCi/cc^{(2)}$	35
1st PMM: (RM-1VS-111 SA-9	<del>)</del> )		1474	1L-1 to		
2nd PMM: (RM-1VS-101B, or 3rd PMM: Grab Sampling eve	109 Ch 5) rv 12					
hours	- <b>y</b> '			·		
c. Gaseous Waste/Process Vent	System (PV-1/2	\$) 				
Mid Range Noble Gas	(1)	1, 2, 3, & 4	NΔ	1E-3 to	$1E+3 uCi/cc^{(3)}$	35
lst PMM: (RM-1GW-110 SA-	-10)		112 4	12 5 10	12:5 40000	
2nd PMM: (RM-1GW-108B, o 3rd PMM: Grab Sampling eve	r 109 Ch 5) rv 12					
hours						
High Range Noble Gas	(1)	1, 2, 3, & 4			· · · · · · · · (3)	35
Pri: (RM-1GW-109 Ch 9) 1st PMM: (RM-1GW-110 SA-	-9)		$\leq$ 1.76E+5 cpm	1E-1 to	$1E+5 \text{ uCi/cc}^{(3)}$	
2nd PMM: (RM-1GW-108B, o	r 109 Ch5)					
Sra Pivilvi: Grab Sampling eve	ry 12					

Deguer Volley Dower Station	Procedure Nu	mber:
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1106.	1/2	General Skill Reference
ODCM: Controls for RETS and REMP Programs	Revision: 8	Page Number:
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ODCM CONTROLS: RADIATION MONITORI	NG INSTRUMEN	TATION
hours		
(a) Instruments or actions shown as PMM are the preplanned methods to inoperable. <u>SINCE</u> the PMM instruments shown are not considered or <u>THEN</u> the ODCM Surveillance Requirements do not apply to the PMM Action 35b would still apply when inoperability of the primary instruments.	be used when the prin comparable alternate n M. Therefore, the rep ment exceeds 30 days.	nary instrument is nonitoring channels, orting requirement of
$\sim$		

Beaver Valley	Powe	r Station		Procedure Num	nber:		
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				1/2	General Skill	Reference	
ODCM: Controls for RETS and REMP Programs           8         Page Number:           22 of 8							
	A	TTACHMENT	D				
ODOM CONTROL S.		Page 4 of 10					
ODCM CONTROLS:	KADIA	TION MONITO	KING INS.	IKUMENI	ATION		
	TAE	BLE 3.3-6 (Cont	inued)				
BV-1 RADI	ATION N	MONITORING	INSTRUMI	ENTATION	N		
Pri = Primary Instru	uments,	PMM = Prepla	anned Metho	od of Moni	toring ^(a)		
M CH <u>INSTRUMENT</u> OI	IINIMUM IANNELS PERABLE	APPLICABLE MODES	<u>SETPOINT</u>	N MEA 	IOMINAL ASUREMENT <u>RANGE</u>	<u>ACTION</u>	
2. Noble Gas Effluent Steam Monitor	rs						
a. Atmospheric Steam Dump Valve	and Code	Safety Relief Valv	e Discharge				
Pri: (RM-1MS-100A) PMM: (Form 1/2-HPP-4.02.009.F01 or (1/2-ENV-05.14.F01)	(1) l)	1, 2, 3, & 4	≤ 50 cpm	1E-1 t	o 1E+3 uCi/cc	35	
Pri: (RM-1MS-100B) PMM: (Form 1/2-HPP-4.02.009.F01 or (1/2-ENV-05.14.F01)	(1)  )	1, 2, 3, & 4	≤ 50 cpm	1E-1 t	o 1E+3 uCi/cc	35	
Pri: (RM-1MS-100C) PMM: (Form 1/2-HPP-4.02.009.F01 or (1/2-ENV-05.14.F01)	(1)  )	1, 2, 3, & 4	≤ 50 cpm	/ 1E-1 t	o 1E+3 uCi/cc	35	
b. Auxiliary Feedwater Pump Turbin	ne Exhaust	t					
Pri: (RM-1MS-101) PMM: (Form 1/2-HPP-4.02.009.F01 or (1/2-ENV-05.14.F01)	(1) 1)	1, 2, 3, & 4	≤ 170 cpm	1E-1 t	o 1E+3 uCi/cc	35	
(a) Instruments or actions shown as PM inoperable. <u>SINCE</u> the PMM instru the ODCM Surveillance Requirement would still apply when inoperability	M are the p ments shown ts do not a of the prin	preplanned method wn are not consider apply to the PMM. nary instrument exc	s to be used w ed comparable Therefore, the ceeds 30 days.	hen the prime alternate mo e reporting re	ary instrument is onitoring channe quirement of Ac	s els, <u>THEN</u> tion 35b	
1							

<b>r</b>	······································		Т	D 1 NT	1		
Beaver Valley	1/2-ODC-3.03						
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	~ ~	Page 5 of 10					
ODCM CONTROLS:	RADIA	TION MONIT	ORING INST	RUMEN	ΓATION		
	TA	BLE 3.3-6 (Co	ntinued)				
<u>BV-2 RADL</u>	ATION	MONITORING	INSTRUME	NTATIO	N		
Pri = Primary Instru	uments,	$\mathbf{PMM} = \mathbf{Prep}$	lanned Metho	d of Moni	itoring ^(a)		
MI CHA <u>INSTRUMENT</u> OPP	NIMUM ANNELS ERABLE	APPLICABLE <u>MODES</u>	SETPOINT ⁽¹⁾	ME2	NOMINAL ASUREMENT <u>RANGE</u>	<u>ACTION</u>	
1. Noble Gas Effluent Monitors							
a. SLCRS Filtered Pathway (CV-2; A	Also called	l Elevated Releas	e)				
Midrange Noble Gas (Xe-133)		_					
Pri: (2HVS-RQ109C) 1st PMM: (2HVS-RQ109D) 2nd PMM: (2HVS-RQ109B) 3rd PMM: Grab Sampling every 12	(1) hours	1, 2, 3, & 4	NA	1E-4 1	to 1E+2 μCi/cc	35	
High Range Noble Gas (Xe-133)		,					
Pri: (2HVS-RQ109D) 1st PMM: (2HVS-RQ109C) 2nd PMM: (2HVS-RQ109B) 3rd PMM: Grab Sampling every 12	(1)	1, 2, 3, & 4	NA	1E-1 1	to 1E+5 μCi/cc	35	
nours							
2. Noble Gas Effluent Steam Monitors							
a. Main Steam Discharge (Kr-88) Pri: (2MSS-RQ101A) PMM: Form 1/2-HPP-4.02.009.F01 or 1/2-ENV-05.14.F01	1/SG	1, 2, 3, & 4	≤3.9E-2 μCi/α	cc 1E-2 t	to 1E+3 μCi/cc	35	
Pri: (2MSS-RQ101B) PMM: Form 1/2-HPP-4.02.009.F01 or 1/2-ENV-05.14.F01	1/SG	1, 2, 3, & 4	≤3.9E-2 µCi/o	cc 1E-2 t	to 1E+3 μCi/cc	35	
Pri: (2MSS-RQ101C) PMM: Form 1/2-HPP-4.02.009.F01 or 1/2-ENV-05.14.F01	1/SG	1, 2, 3, & 4	≤3.9E-2 μCi/α	cc 1E-2 t	to 1E+3 μCi/cc	35	
(a) Instruments or actions shown as PM inoperable. SINCE the PMM instrum	M are the ments sho	preplanned metho wn are not conside	ds to be used whe	en the prim	ary instrument is	s Is. THEN	

inoperable. <u>SINCE</u> the PMM instruments shown are not considered comparable alternate monitoring channels, <u>THEN</u> the ODCM Surveillance Requirements do not apply to the PMM. Therefore, the reporting requirement of Action 35b would still apply when inoperability of the primary instrument exceeds 30 days.

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		.1		1/2-ODC-3.03
me:		Unr	 1/2	General Skill Reference
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Ċ	DCM CONTROLS: RADIATION MON	ITORING INSTRU	JMEN	TATION
	<u>TABLE 3.3-6 (</u>	Continued)		
	TABLE NOTA	ATIONS		
(1) Above	e background			
⁽²⁾ Nomi	nal range for Ch 7 and Ch 9. The Alarm is	s set on Ch 7.		,
⁽³⁾ Nomi	nal range for Ch 7 and Ch 9. The Alarm is	s set on Ch 9.		
⁽⁴⁾ Other	SPING-4 channels are not applicable to the	nis ODCM Control.		
	ACTION STAT	EMENIS		
ACTION 35	With the number of OPERABLE channed OPERABLE requirement, either restore within 72 hours, or:	els less than required the inoperable Char	by the by	e Minimum Channels to OPERABLE status
	a) Initiate the preplanned alternate r parameter(s), and	nethod of monitorin	g the a	appropriate
	b) Return the channel to OPERABI Radioactive Effluent Release Rep timely manner.	LE status within 30 coort why the inoperation	lays, c bility	or, explain in the next was not corrected in a
<b>.</b> .				
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Beaver Valley Po	wer Stati	ion	Procedure Numl	ber: /2-ODC-3.03
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ODCM CONTROLS: RA	DIATION M	ONITORING II	NSTRUMENT	ATION
	TABLE 4.3-	3 (Continued)		
<b>BV-1 RADIATION MONITORIN</b>	G INSTRUME	ENTATION SURV	VEILLANCE R	EQUIREMENTS
Pri = Primary Instrume	nts, PMN	A = Preplanned M	ethod of Monito	ring ^(a)
		•	CHANNEL	MODES IN WHICH
	CHANNEL	CHANNEL	OPERATIONA	L SURVEILLANCE
INSTRUMENT	<u>CHECK</u>	CALIBRATION	<u>TEST</u>	REQUIRED
1. Noble Gas Effluent Monitors - SPINGS	5			
a. Reactor Building/SLCRS (CV-1; Als Mid Bange Noble Cas	o called Elevat	ea Kelease) P	· M	123&4
Pri: (RM-1VS-110 Ch 7)	J	17	141	1, 2, 3, 62 4
1st PMM: (RM-1VS-112 SA-10)				
2nd PMM: (RM-1VS-107B, or VS-110	) Ch			
3rd PMM: Grab Sampling every 12 ho	ours			
High Range Noble Gas	S	R	М	1, 2, 3, & 4
Pri: (RM-1VS-110 Ch 9)				
1st PMM: (RM-1VS-112 SA-9)	) Ch			
5)				
3rd PMM: Grab Sampling every 12 ho	ours			
b. Auxiliary Building Ventilation Syste	m (VV-1; Also	called Ventilation	Vent)	
Mid Range Noble Gas	S	R	М	1, 2, 3, & 4
Pri: (RM-1VS-109 Ch /) 1st PMM: (RM-1VS-111 SA-10)				
2nd PMM: (RM-1VS-101B, or VS-109	9 Ch			
5)				
3rd PMM: Grab Sampling every 12 ho	ours	_		
High Range Noble Gas	S	R	М	1, 2, 3, & 4
1st PMM: (RM-1VS-111 SA-9)				
2nd PMM: (RM-1VS-101B, or VS-109	9 Ch			
5) 2nd D) O (c. Carly Secretize super 12 h				
Coscous Woote Brosses Vent Sustan				
Mid Range Noble Gas	(1 V-1,4) S	R	М	1, 2, 3, & 4
Pri: (RM-1GW-109 Ch 7)				
1 Ist PMM: (RM-1GW-110 SA-10)	00 ርኬ ናን			
3rd PMM [•] Grab Sampling every 12 by				
High Range Noble Gas	S	R	М	1, 2, 3, & 4
Pri: RM-1GW-109 Ch 9)	5	~~	2·*	., _, _,
1st PMM: (RM-1GW-110 SA-9)				
2nd PMM: (RM-1GW-108B, or GW-1 3rd PMM: Grab Sampling every 12 h	09 Ch5)			
Starthan. Grad Samphing Overy 12 In	U			
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itle:	Unit:	Level Of Use:
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ODCM CONTROLS: RADIATION MONITORING IN	STRUMEN	TATION
(a) Instruments or actions shown as PMM are the preplanned methods to be used when the PMM instruments shown are not considered comparable alternate monitoring characteristic considered comparable alternate monitoring characteristic construction.	ne primary instru	Iment is inoperable. <u>SINCE</u>
Requirements do not apply to the PMM. Therefore, the reporting requirement of Acti	ion 35b would st	till apply when inoperability
of the primary instrument exceeds 30 days.		
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				2-0DC-3.03
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ODCM CONTROLS: RA	DIATION M	IONITORING IN	ISTRUMENT.	ATION
	TABLE 4.3-	-3 (Continued)		
		TATIONI OF D	VICT ANOT	DEOLIDEMENTS
BV-1 KADIATION MONITORING		ENTATION SUR	VEILLANCE	<u>REQUIREMENTS</u>
Pri = Primary Instrumer	nts. PMM	= Preplanned Me	thod of Monite	oring ^(a)
	,			
			CHANNEL	MODES IN WHICH
	CHANNEL	CHANNEL	OPERATIONA	L SURVEILLANCE
INSTRUMENT	<u>CHECK</u>	<b>CALIBRATION</b>	TEST	REQUIRED
2. Noble Gas Effluent Steam Monitors				
a. Atmospheric Steam Dump Valve and	Code Safety F	Relief Valve Dischar	rge	
$\mathbf{Pri} \in (\mathbf{PM}_{-1}\mathbf{MS}_{-100}\mathbf{A})$	s couc salety r	D	M	12381
$\frac{11}{2} \frac{11}{2} \frac$	6	K .	111	1, 2, 3, <b>x</b> +
$r_1/2$ ENV 05 14 E01)				
011/2-12100-05.14.1011				
Pri: (RM-1MS-100B)	S	R	М	1, 2, 3, & 4
PMM: (Form 1/2-HPP-4.02.009.F01				
or 1/2-ENV-05.14.F01)				
Pri: (RM-1MS-100C)	c	а	М	1 2 2 8 4
PMM: (Form 1/2-HPP-4.02.009.F01	3	ĸ	M	1, 2, 3, & 4
or 1/2-ENV-05.14.F01)				
b. Auxiliary Feedwater Pump Turbine	Exhaust			
Pri: (RM-1MS-101)	c	D	М	12381
PMM: (Form 1/2-HPP-4 02 009 F01	3	K	IVI	1, 2, 3, <del></del> 4
or 1/2-FNV-05 14 F01)				
01 1/2-1114-03.14.101)				

(a)

Instruments or actions shown as PMM are the preplanned methods to be used when the primary instrument is inoperable. <u>SINCE</u> the PMM instruments shown are not considered comparable alternate monitoring channels, <u>THEN</u> the ODCM Surveillance Requirements do not apply to the PMM. Therefore, the reporting requirement of Action 35b would still apply when inoperability of the primary instrument exceeds 30 days.

Reover Volley Pour	ar Stati		Procedure Numb	ег:				
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Title:		•	Unit: 1/2	General Skill Reference				
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ATTACHMENT D								
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ODCM CONTROLS: RADIATION MONITORING INSTRUMENTATION								
	TABLE 4.3-3 (Continued)							
<b>BV-2 RADIATION MONITORING IN</b>	STRUME	NTATION SUR	VEILLANCE	<u>REQUIREMENTS</u>				
Pri = Primary Instruments,	PMM =	Preplanned Me	thod of Monito	oring ^(a)				
CHANNE INSTRUMENT 1. Noble Gas Effluent Monitors	EL CHECK	CHANNEL CALIBRATION	CHANNEL OPERATIONAI TEST	MODES IN WHICH SURVEILLANCE REQUIRED				
a. SLCRS Unfiltered Pathway (CV-2; Also	called Eleva	ated Release)						
Mid Range Noble Gas Pri: (2HVS-RQ109C) 1st PMM: (2HVS-RQ109D) 2nd PMM: (2HVS-RQ109B) 3rd PMM: Grab Sampling every 12 hours	S	R	M	1, 2, 3, & 4				
High Range Noble Gas Pri: (2HVS-RQ109D) 1st PMM: (2HVS-RQ109C) 2nd PMM: (2HVS-RQ109B) 3rd PMM: Grab Sampling every 12 hours	S	R	М	1, 2, 3, & 4				
2. Noble Gas Effluent Steam Monitors								
a. Main Steam Discharge (Kr-88) Pri: (2MSS-RQ101A) PMM: (Form 1/2-HPP-4.02.009.F01 or 1/2-ENV-05.14.F01)	S	R	М	1, 2, 3, & 4				
Pri: (2MSS-RQ101B) PMM: (Form 1/2-HPP-4.02.009.F01 or 1/2-ENV-05.14.F01)	S	R	М	1, 2, 3, & 4				
Pri: (2MSS-RQ101C) PMM: (Form 1/2-HPP-4.02.009.F01 or 1/2-ENV-05.14.F01)	S	R .	М	1, 2, 3, & 4				
				н. -				

(a) Instruments or actions shown as PMM are the preplanned methods to be used when the primary instrument is inoperable. <u>SINCE</u> the PMM instruments shown are not considered comparable alternate monitoring channels, <u>THEN</u> the ODCM Surveillance Requirements do not apply to the PMM. Therefore, the reporting requirement of Action 35b would still apply when inoperability of the primary instrument exceeds 30 days.

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ODCM CONTROLS: RETS INSTRUMENTATION FOR LI	IQUID EF	FLUENTS						
CONTROLS: RADIOACTIVE LIQUID EFFLUENT MONITORING I	INSTRUM	MENTATION						
3.3.3.9 In accordance with T.S. 5.5.2.a, the radioactive liquid effluent monitoring instrumentation channels shown in ODCM Control 3.3.3.9, Table 3.3-12 shall be OPERABLE with their alarm/trip setpoints set to ensure that the limits of ODCM CONTROL 3.11.1.1 are not exceeded. The alarm/trip setpoints of the radiation monitoring channels shall be determined in accordance with 1/2-ODC-2.01.								
Applicability - During Releases Through the Flow Path:								
a. For all Gross Activity (e.g.; Beta or Gamma) Radioact	ivity Mon	itors						
b. For all Flow Rate Measurement Devices								
Applicability - During Liquid Additions to the Tank:								
a. For all Tank Level Indicating Devices								
Action:								
a. With a radioactive liquid effluent monitoring instrumentation cha conservative than required by the above specification, immediated radioactive liquid effluents monitored by the affected channel or o	nnel alarm ly suspend correct the	n/trip setpoint less I the release of e alarm/trip setpoint.						
b. With one or more radioactive liquid effluent monitoring instrumentation channels inoperable, take the ACTION shown in ODCM Control 3.3.3.9, Table 3.3-12 or conservatively reduce the alarm setpoint. Exert a best effort to return the channel to operable status within 30 days, and if unsuccessful, explain in the next Radioactive Effluent Release Report why the inoperability was not corrected in a timely manner.								
c. The provisions of ODCM CONTROL 3.0.3 are not applicable.								
SURVEILLANCE REOUIREMENTS								
4.3.3.9 Each radioactive liquid effluent monitoring instrumentation channel shall be deroperable by performance of the CHANNEL CHECK, SOURCE CHECK, CHACALIBRATION, and CHANNEL OPERATIONAL TEST operations at the firshown in ODCM Control 3.3.3.9, Table 4.3-12.								
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Title:	Unit:	Level Of Use:					
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ODCM: Controls for RETS and REMP Programs	Revision: 8	Page Number: 30 of 86					
ATTACHMENT E Page 2 of 10 ODCM CONTROLS: RETS INSTRUMENTATION FOR 3	LIQUID EF	FFLUENTS					
TABLE 3.3-12							
BV-1 RADIOACTIVE LIQUID EFFLUENT MONITORING	<b>BV-1 RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION</b>						
Pri = Primary Instruments, Alt = Alternate I	nstruments						
	INIMUM						
INSTRUMENT OF	PERABLE	<b>ACTION</b>					
1. Gross Activity Monitors Providing Automatic Termination Of	Release						
a. Liquid Waste Effluents Monitor Pri: (RM-1LW-104)	(1)	23					
<ul> <li>b. Liquid Waste Contaminated Drain Monitor</li> <li>Pri: (RM-1LW-116)</li> </ul>	(1)	23					
<ul> <li>c. Auxiliary Feed Pump Bay Drain Monitor</li> <li>Pri: (RM-1DA-100)</li> </ul>	(1)	24					
2. Gross Activity Monitors Not Providing Termination Of Releas	е.						
<ul> <li>a. Component Cooling-Recirculation Spray Heat Exchangers River Water Monitor Pri: (RM-1RW-100)</li> </ul>	(1)	24					
3. Flow Rate Measurement Devices							
a. Liquid Radwaste Effluent Line Pri: (FR-1LW-104) for (RM-1LW-104)	(1)	25					
<ul> <li>b. Liquid Waste Contaminated Drain Line</li> <li>Pri: (FR-1LW-103) for (RM-1LW-116)</li> </ul>	(1)	25					
c. Cooling Tower Blowdown Line Pri: (FT-1CW-101-1) or Alt: (FT-1CW-101) and (2CWS-FT101)	(1)	25A					
4. Tank Level Indicating Devices (for tanks outside plant building	g)						
a. Primary Water Storage Tank Pri: (LI-1PG-115A) for (1BR-TK-6A)	(1)	26					
<ul> <li>b. Primary Water Storage Tank</li> <li>Pri: (LI-1PG-115B) for (1BR-TK-6B)</li> </ul>	(1)	26					
c. Steam Generator Drain Tank Pri: (LI-1LW-110) for (1LW-TK-7A)	(1)	26					
d. Steam Generator Drain Tank Pri: (LI-1LW-111) for (1LW-TK-7B)	(1)	26					

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Beaver Valley Power Station	Procedure Nur	nber: 1/2-ODC-3.03
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ATTACHMENT E Page 3 of 10 ODCM CONTROLS: RETS INSTRUMENTATION	ON FOR LIQUID EF	FLUENTS
<u>TABLE 3.3-12 (contin</u>	nued)	
BV-2 RADIOACTIVE LIQUID EFFLUENT MONI	ITORING INSTRUM	<b>IENTATION</b>
Pri = Primary Instruments, Alt = Alt	ernate Instruments	
	MINIMUM CHANNELS	ACTION
	<u>OFERABLE</u>	ACTION
1. Gross Radioactivity Monitor Providing Alarm, <u>And</u> A	lutomatic Terminat	ion Of Release
<ul> <li>a. Liquid Waste Process Effluent Monitor</li> <li>Pri: (2SGC-RQ100)</li> </ul>	(1)	23
2. Gross Radioactivity Monitors Providing Alarm, <u>But N</u>	<u>Not</u> Providing Termi	ination Of Release
a. None Required		
3. Flow Rate Measurement Devices		
a. Liquid Radwaste Effluent Pri: (2SGC-FS100)	(1)	25
<ul> <li>b. Cooling Tower Blowdown Line</li> <li>Pri: (FT-1CW-101-1) or</li> <li>Alt: (FT-1CW-101) and (2CWS-FT101)</li> </ul>	(1)	25A
4. Tank Level Indicating Devices (for tanks outside plan	t buildings)	
a. None Required		
		•

	Beav	er Valley Power Station	Procedure N	umber: 1/2-ODC-3.03	
Title:			Unit:	Level Of Use: General Skill Reference	
ODCM: Cor	ntrols fo	r RETS and REMP Programs	Revision:	Page Number:	
	<u>, , , , , , , , , , , , , , , , , , , </u>	ATTACHMENT E	8	<u>32 of 86</u>	
		Page 4 of 10		EEL LIENITO	
UI OI		UNIROLS: REISINSTRUMENTATION FOR	LIQUIDE	FFLUEN15	
		TABLE 3.3-12 (continued)			
		ACTION STATEMENTS			
Action 23	With OPE prior	the number of channels OPERABLE less than req RABLE requirement, effluent releases may be initi to release:	uired by th ated (or res	e Minimum Channels sumed) provided that	
·	1.	At least two independent samples are analyzed in SURVEILLANCE REQUIREMENT 4.11.1.1.1 qualified members of the Facility Staff independ calculations ⁽¹⁾ and discharge valving, or	n accordan l, and at lea ently verify	ace with ODCM ast two technically the release rate	
	2.	Initiate monitoring with the comparable alternat Surveillance requirements applicable to the inop comparable alternate monitoring channel when a CONTROL requirement.	e monitorir erable char used to sati	ng channel. ODCM unel shall apply to the sfy this ODCM	
	Othe	rwise, suspend release of radioactive effluents via t	his pathwa	y.	
Action 24	With OPE	With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue provided:			
	1.	That at least once per 12 hours grab samples are (beta or gamma) at a Lower Limit of Detection	e analyzed f (LLD) of a	for gross radioactivity tt least 1E-7 uCi/ml, or	
	2.	Initiate monitoring with the comparable alternat Surveillance requirements applicable to the inop comparable alternate monitoring channel when a CONTROL requirement.	e monitorir erable char used to sati	ng channel. ODCM nnel shall apply to the sfy this ODCM	
⁽¹⁾ Since the rate calcu "reviewe independ	e compu ulations, r" satisf ently ve	ter software used for discharge permit generation , then the independent signatures on the discharge y the requirement for "two technically qualified r erify the release rate calculations"	automatical permit for ' nembers of	lly performs the release "preparer" and T the Facility Staff	

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Beaver Valley Power Station       Procedure Number:         1/2-O]       1/2-O]         Title:       Unit:       Level         ODCM: Controls for RETS and REMP Programs       1/2       Gen         Revision:       Page 1       8         ATTACHMENT E       Page 5 of 10       8         ODCM CONTROLS:       RETS INSTRUMENTATION FOR LIQUID EFFLUE       Table 3.3-12 (continued)         ACTION STATEMENTS       Action 25       With the number of channels OPERABLE less than required by the Minin	DC-3.03 Of Use:				
Title:       Unit:       Level         ODCM:       Controls for RETS and REMP Programs       Page 1         ATTACHMENT E       Page 5 of 10         ODCM CONTROLS:       RETS INSTRUMENTATION FOR LIQUID EFFLUE         Table 3.3-12 (continued)         ACTION STATEMENTS         Action 25       With the number of channels OPERABLE less than required by the Minin	Of Use:				
ODCM: Controls for RETS and REMP Programs       Revision:       Page 1         Revision:       8         ATTACHMENT E       Page 5 of 10         ODCM CONTROLS: RETS INSTRUMENTATION FOR LIQUID EFFLUE         Table 3.3-12 (continued)         ACTION STATEMENTS         Action 25       With the number of channels OPERABLE less than required by the Minin	eral Skill Reference				
ATTACHMENT E Page 5 of 10 ODCM CONTROLS: RETS INSTRUMENTATION FOR LIQUID EFFLUE <u>Table 3.3-12 (continued)</u> <u>ACTION STATEMENTS</u> Action 25 With the number of channels OPERABLE less than required by the Minin	Number:				
Table 3.3-12 (continued)         ACTION STATEMENTS         Action 25       With the number of channels OPERABLE less than required by the Minin	ENTS				
ACTION STATEMENTS Action 25 With the number of channels OPERABLE less than required by the Minin					
Action 25 With the number of channels OPERABLE less than required by the Minin					
OPERABLE requirement, effluent releases via this pathway may continue	mum Channels e provided:				
1. The flow rate is estimated at least once per 4 hours during actual curves may be used to estimate flow), or	releases. (Pump				
2. Initiate monitoring with the comparable alternate monitoring chan Surveillance requirements applicable to the inoperable channel sha comparable alternate monitoring channel when used to satisfy this CONTROL requirement.	nnel. ODCM all apply to the s ODCM				
Action 25A With the number of channels OPERABLE less than required by the Minimum OPERABLE requirement, effluent releases via this pathway may continue pro-					
1. The dilution flow rate is calculated at least once per 4 hours durin using the methods described in procedure (1MSP-31.06-I), or	1. The dilution flow rate is calculated at least once per 4 hours during actual releases using the methods described in procedure (1MSP-31.06-I), or				
2. Initiate monitoring with the comparable alternate monitoring chan Surveillance requirements applicable to the inoperable channel sha comparable alternate monitoring channel when used to satisfy this CONTROL requirement.	anel. ODCM all apply to the SODCM				
Action 26 With the number of channels OPERABLE less than required by the Minir OPERABLE requirement, liquid additions to this tank may continue prov	mum Channels vided:				
1. The tank liquid level is estimated during all liquid additions to the	1. The tank liquid level is estimated during all liquid additions to the tank, or				
2. Initiate monitoring with the comparable alternate monitoring chan Surveillance requirements applicable to the inoperable channel sha comparable alternate monitoring channel when used to satisfy this CONTROL requirement.	anel. ODCM all apply to the ODCM				

	Beaver Valley Powe	er Station		Procedure Numb	er: 2-0DC-3 03			
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	Æ	ATTACHMEN'	ΓЕ					
	Page 6 of 10 ODCM CONTROLS: RETS INSTRUMENTATION FOR LIQUID FEELUENTS							
	ODEM CONTROLS. ALTO INSTRUMENTATION FOR EIGOID EFFECENTS							
		TABLE 4.3-	12					
	<u>BV-1 RADIOACTIV</u> INSTRUMENTATIO	E LIQUID EFF N SURVEILLA	LUENT MO	NITORING IREMENTS	<u>1</u>			
	Pri = Primary Instr	uments, Alt	= Alternate Ir	struments				
	INSTRUMENT	CHANNEL <u>CHECK</u>	SOURCE <u>CHECK</u>	CHANNI <u>CALIBRA</u> T	CHANNEL EL OPERATIONAL <u>FION TEST</u>			
1. Gi	ross Beta or Gamma Radioactivity Monitor	s Providing Aları	n And Automa	tic Terminatio	on Of Release			
a.	Liquid Radwaste Effluent Line Pri: (RM-1LW-104)	D	P ⁽⁵⁾	R ⁽³⁾	Q ⁽¹⁾			
b.	Liquid Waste Contaminated Drain Line Pri: (RM-1LW-116)	D	P ⁽⁵⁾	R ⁽³⁾	Q ⁽¹⁾			
C.	Auxiliary Feed Pump Bay Drain Monitor Pri: (RM-1DA-100)	D	D	R ⁽³⁾	Q ⁽¹⁾			
2. Gi Re	ross Beta Or Gamma Radioactivity Monitor	rs Providing Alar	m But Not Pro	viding Autom	atic Termination Of			
a.	Component Cooling - Recirculation Spray Heat Exchangers River Water Monitor Pri: (RM-1RW-100)	D	M ⁽⁵⁾	R ⁽³⁾	Q ⁽²⁾			
3. Flo	ow Rate Monitors							
<b>a</b> .	Liquid Radwaste Effluent Lines Pri: (FR-1LW-104) for (RM-1LW-104)	D ⁽⁴⁾	NA	R	Q			
b.	Liquid Waste Contaminated Drain Line Pri: (FR-1LW-103) for (RM-1LW-116)	<b>D</b> ⁽⁴⁾	NA	R	Q			
C.	Cooling Tower Blowdown Line Pri: (FT-1CW-101-1) or Alt: (FT-1CW-101) and (2CWS-FT101	D ⁽⁴⁾	NA	R	Q			

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ODCM CONTROLS: RETS I	NSTRUMENTA	ATION FOR I	LIQUID EFF	LUENTS
<u>T</u> A	ABLE 4.3-12 (cc	ontinued)		
ΟΥ 1 ΒΑΠΙΛΑΟΤΙ				
<u>BV-I KADIOACII</u> INSTRUMENTATU	<u>VE LIQUID EF.</u> ON SURVEILI	ANCE REOL	TREMENTS	
	OIT SORVEILL	AILE REQU		
Pri = Primary Inst	truments, Alt	= Alternate In	struments	
				CHANNEL
	CHANNEL	SOURCE	CHANNEI	L OPERATIONAL
INSTRUMENT	<u>CHECK</u>	<u>CHECK</u>	<u>CALIBRATI</u>	<u>ON</u> <u>TEST</u>
4. Tank Level Indicating Devices (for tanks	outside plant buil	dings)		
a. Primary Water Storage Tank	D*	NA	R	Q
РП: (LI-IPG-115А) юг (IBR-1К-6А)				
b. Primary Water Storage Tank Pri: (1 L-19G-115B) for (1BP-TK-6B)	D*	NA	R	Q
	<b>D</b> ⁺		Ъ	0
c. Steam Generator Drain Tank Pri: (LI-1LW-110) for (1LW-TK-7A)	D*	NA	K	Q
d. Steam Generator Drain Tank	D*	NA	R	0
Pri: (LI-1LW-111) for (1LW-TK-7B)				Č,
*During liquid additions to the tank.				

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ODCM CONTROLS: RETS INSTRUMENTATION FOR LIQUID EFFLUENTS							
TABLE 4.3-12 (continued)							
<b>BV-2 RADIOACTIVE LIQUID EFFLUENT</b>	MONITORI	NG					
INSTRUMENTATION SURVEILLANCE RI	EQUIREMEN	<u>ITS</u>	-				
Pri = Primary Instruments, Alt = Alterna	te Instrument	5					
CHANNEL SOURC INSTRUMENT <u>CHECK</u> <u>CHECK</u>	E CHAN	NEL ATION	CHANNEL OPERATIONAL <u>TEST</u>				
1. Gross Radioactivity Monitor Providing Alarm And Automatic Terminati	on Of Release						
a. Liquid Waste Process Effluent D P ⁽⁵⁾ Pri: (2SGC-RQ100)	R ⁽⁷⁾⁽	3)	Q ⁽⁶⁾				
· .							
2. Flow Rate Measurement Devices							
a. Liquid Radwaste Effluent D ⁽⁴⁾ NA Pri: (2SGC-FS100)	R		Q				
b. Cooling Tower Blowdown Line D ⁽⁴⁾ NA Pri: (FT-1CW-101-1) or Alt: (FT-1CW-101) and (2CWS-FT101)	R	×	Q				
<b>3. Tank Level Indicating Devices (for tanks outside plant buildings)</b> a. None Required							
· · · · · · · · · · · · · · · · · · ·							

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	Beaver Valley Power Station	Procedure Nu	imber: 1/2-ODC-3.03
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	ATTACHMENT E Page 9 of 10 ODCM CONTROLS: RETS INSTRUMENTATIO	ON FOR LIQUID E	FFLUENTS
	TABLE 4.3-12 (contin	nued)	
	TABLE NOTATIC	<u>N</u>	
(1)	The CHANNEL OPERATIONAL TEST shall also de pathway and Control Room Alarm Annunciation occu	monstrate that auto rs if any of the follo	matic isolation of this wing conditions exist:
	1. Instrument indicates measured levels above the	e alarm/trip setpoint.	·
	2. Downscale failure.		
	3. Instrument controls not set in operate mode.		
(2)	The CHANNEL OPERATIONAL TEST shall also de Annunciation occurs if any of the following conditions	monstrate that Cont exist:	rol Room Alarm
	1. Instrument indicates measured levels above the	e alarm/trip setpoint.	
	2. Downscale failure.		
	3. Instrument controls are not set in operate mod	e.	
(3)	The initial CHANNEL CALIBRATION for radioactive performed using one or more of the reference standard (Standards/NIST) or using standards that have been of measurement assurance activities with NBS/NIST. The system over its intended range of energy and rate capa CALIBRATION, sources that have been related to the intervals of at least once per 18 months. This can norm outages. (Existing plants may substitute previously es requirement).	ity measurement ins ls certified by the N btained from supplie nese standards shoul bilities. For subseque initial calibration sh nally be accomplish tablished calibration	strumentation shall be ational Bureau of ers that participate in d permit calibrating the uent CHANNEL hould be used, at ed during refueling procedures for this
(4)	CHANNEL CHECK shall consist of verifying indication CHANNEL CHECK shall be made at least once daily or batch releases are made.	on of flow during pe on any day on whic	priods of release. h continuous, periodic,
(5)	A SOURCE CHECK may be performed utilizing the in a portable source to obtain an upscale increase in the e response.	nstalled means or fla existing count rate to	shing the detector with verify channel

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	Page 10 01 10 ODCM CONTROLS: RETS INSTRUMENTATION FO	R I IOI IID FE	FI LIENTS
			I LOLITID
	<u>IABLE 4.3-12 (continued)</u>		
	<b>TABLE NOTATION</b>		
(6)	The CHANNEL CALIBRATION shall also demonstrate tha and Control Room Alarm Annunciation occurs if the instrum the alarm/trip setpoint.	t automatic iso ent indicates r	blation of this pathway neasured levels above
(7)	The CHANNEL CALIBRATION shall also demonstrate that occurs if either of the following conditions exist:	t Control Roo	m Alarm Annunciation
	1. Downscale failure.		
	2. Instrument controls are not set in operate mode.		
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	ODCM CONTROLS: RETS INSTRUMENT FOR GASEOUS RELEASES						
CONTRO	OLS: RADIOACTIVE GASEOUS EFFLUENT MONITORIN	IG INSTRI	UMENTATION				
		~	(				
3.3.3.10	In accordance with T.S. 5.5.2.a, the radioactive gaseous expanses shown in ODCM Control 3.3.3.10. Table 3.3.13	shall be on	itoring instrumentation				
	alarm/trip setpoints set to ensure that the limits of ODCM	CONTRO	L 3.11.2.1 are not				
	exceeded. The alarm/trip setpoints of the radiation monitor	oring chann	els shall be determined				
	in accordance with 1/2-ODC-2.02.						
Applicab	lity: During releases through the flow path.						
Action:							
a. Wit	h a radioactive gaseous process or effluent monitoring instrum	entation ch	annel alarm/trip				
setr	point less conservative than a value which will ensure that the l	imits of OE	OCM CONTROL				
3.1	1.2.1 are met, immediately suspend the release of radioactive g	aseous effli	lents monitored by the				
	ered channel of correct the alarmitity serpoint.						
b. Wit	h one or more radioactive gaseous effluent monitoring instrum	entation ch	annels inoperable, take				
the set	ACTION shown in ODCM Control 3.3.3.10, Table 3.3-13 or point. Event a best effort to return the channel to operable stati	conservativ	vely reduce the alarm				
uns	uccessful, explain in the next Radioactive Effluent Release Rep	ort why the	e inoperability was not				
cor	rected in a timely manner.	,	1 5				
с. Т	he provisions of ODCM CONTROL 3.0.3 are not applicable.						
CUDVEI							
4.3.3.10	Each radioactive gaseous effluent monitoring instrumentat	ion channel	shall be				
	CHANNEL CALIBRATION and CHANNEL OPERATI	ONAL TE	ST operations at the				
	frequencies shown in ODCM Control 3.3.3.10, Table 4.3-	13.	or operations at the				
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J							

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	ODCM CONTROLS · RETS INSTRU	MENT FOR GA	SEOUS REI	EASES			
		$\frac{2}{3} \frac{3}{3} \frac{3}{13}$					
	BV-1 RADIOACTIVE GASEOUS EFFLUE			MATION			
	Pri = Primary Instruments,	AII = AIIemale	Instruments				
		CHANNELS					
	<b>INSTRUMENT</b>	OPERABLE	APPLICAB	ILITY ACTION			
1. Ga	seous Waste/Process Vent System (PV-1/2)			,			
a.	Noble Gas Activity Monitor Pri: (RM-1GW-108B) or	(1)	*	27,29,30A,30B			
	Alt For Continuous Release: (RM-1GW-109 Ch 5)	nay only be used as	the comparable	e alternate monitoring			
	channel for continuous releases via this pathway. NO Alt For Batch Releases: For information. (RM-1)	GW-109 Ch 5) SHA	LL NOT be us	ed as the comparable			
	alternate monitoring channel for batch releases of the H	BV-1 GWDT's or the	e BV-2 GWST	s. Specifically, <u>SINCE</u> thi			
	channel does not perform the same automatic isolation followed for batch releases of the BV-1 GWDT's or the	BV-2 GWST's via	nary channel, <u>1</u> this pathway.	<u>HEN</u> ACTION 27 shall be			
b.	Particulate and Iodine Sampler	(1)	*	32			
	Pri: (Filter Paper & Charcoal Cartridge for RM-1GW-) 1st Alt: (Filter Paper & Charcoal Cartridge for RM-1G 2nd Alt: (Continuous collection via RASP Pump) or 3rd Alt: (Grab samples every 12 hours)	109) or W-110) or					
c.	System Effluent Flow Rate Measuring Device Pri: (FR-1GW-108) or Alt: (RM-1GW-109 Ch 10)	(1)	*	28A			
d.	Sampler Flow Rate Measuring Device Used for Particulate and Iodine Sample Collection (see 1.b)	(1)	*	28B			
	Pri: (RM-1GW-109 Ch 15) or Alt: (Rotometer: FM-1GW-101) and Vacuum Gauge: P	1-1GW-135)					
2. A	Auxiliary BuildingVentilation System (VV-1; Also call	ed Ventilation					
Vent)	) Nabla Cas Activity Manitan	(1)	*	20 30 4			
a.	Pri: (RM-1VS-101B) or Alt: (RM-1VS-109 Ch 5)	(1)		27,30A			
b.	Particulate and Iodine Sampler	(1)	*	32			
	Pri: (Filter Paper & Charcoal Cartridge for RM-1VS-10	)9) or S-111) or					
	2nd Alt: (Continuous collection via RASP Pump) or	5-111) 01		· · · ·			
2	3rd Alt: (Grab samples every 12 hours)	(1)	*	284			
c.	System Effluent Flow Rate Measuring Device Pri: (FR-1VS-101) or Alt: (RM-1VS-109 Ch 10)	(1)	*	28A			
c. d.	System Effluent Flow Rate Measuring Device Pri: (FR-1VS-101) or Alt: (RM-1VS-109 Ch 10) Sampler Flow Rate Measuring Device Used for	(1)	*	28A 28B			

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ODCM CONTROLS: R	ETS INSTRUMEN	NT FOR GA	SEOUS REI	LEASES	
*During Releases via this pathway.					
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ritle:		<u> </u>	Unit: 1/2	Level Of Use: General Skill Referenc
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	ODCM CONTROLS: RETS INSTRU	MENT FOR GA	SEOUS REL	EASES
	TABLE 3.3-1	13 (continued)		
	<b>BV-1 RADIOACTIVE GASEOUS EFFLUE</b>	ENT MONITOR	ING INSTRU	MENTATION
	Pri = Primary Instruments,	Alt = Alternate	Instruments	
		MINIMUM	,	
		CHANNELS		
<b>A F</b>	INSTRUMENT	OPERABLE	<u>APPLICABII</u>	ACTION
3. Rea a.	ctor Building/SLCRS (CV-1; Also called Elevated R Noble Gas Activity Monitor	elease) (1)	*	29,30A
	Pri: (RM-1VS-107B) or Alt: (RM-1VS-110 Ch 5)	( )		
b.	Particulate and Iodine Sampler	(1)	*	32
	Pri: (Filter Paper & Charcoal Cartridge for RM-1VS-1 1st Alt: (Filter Paper & Charcoal Cartridge for RM-1V 2nd Alt: (Continuous collection via RASP Pump) or 3rd Alt: (Grab samples every 12 hours)	10) or S-112) or		
c.	System Effluent Flow Rate Measuring Device Pri: (FR-1VS-112) or Alt: (RM-1VS-110 Ch 10)	(1)	*	28A :
d.	Sampler Flow Rate Measuring Device Used for Particulate and Iodine Sample Collection (see 3.b) Pri: (RM-1VS-110 Ch 15) or Alt: (Rotometer: FM-1VS-103, and Vacuum Gauge: PI	(1) -1VS-660)	*	28B
470 ·				
"Durii	ng keleases via this pathway.			

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	TABLE 3.3-	13 (continued)		
	<b>BV-2 RADIOACTIVE GASEOUS EFFLU</b>	ENT MONITORI	<u>NG INSTRUN</u>	<u>IENTATION</u>
	Pri = Primary Instruments,	Alt = Alternate	e Instruments	
		MINIMUM CHANNELS		
1. SL	CRS Unfiltered Pathway (VV-2; Also called Ventilati	on Vent)	APPLICAB	<u>ILITI ACTION</u>
a.	Noble Gas Activity Monitor Pri: (2HVS-RQ101B)	(1)	*	29, 30B
b.	Particulate and Iodine Sampler Pri: (Filter Paper & Charcoal Cartridge for 2HVS-RQ1 1st Alt: (Continuous collection via RASP Pump) or 2nd Alt: (Grab samples every 12 hours)	(1) 01) or	*	32
c.	Process Flow Rate Monitor Pri: (Monitor Item 29 for 2HVS-VP101)	(1)	*	28A
d.	Sampler Flow Rate Monitor Used for Particulate and Iodine Sample Collection (see 1.b) Pri: (2HVS-FIT101-1)	(1)	*	28B
2. SL a.	CRS Filtered Pathway (CV-2; Also called Elevated R Noble Gas Activity Monitor Pri: (2HVS-RQ109B)	elease) (1)	*	29, 30B
· b.	Particulate and Iodine Sampler Pri: (Filter Paper & Charcoal Cartridge for 2HVS-R( 1st Alt: (Continuous collection via RASP Pump) or 2nd Alt: (Grab samples every 12 hours)	(1) Q109 High Flow Pa	* th) or	32
c.	Process Flow Rate Monitor Pri: (Monitor Item 29 for 2HVS-FR22) or 1st Alt: (2HVS-FI22A and FI22C) or 2nd Alt: (2HVS-FI22B and FI22D)	(1)	. *	28A
d. DA	Sampler Flow Rate Monitor Used for Particulate and Iodine Sample Collection (see 2.b) Pri: (Monitor Items 28 and 72 for 2HVS-	(1)	*	28B
3. De	contamination Building Vent (DV-2)			
a.	Noble Gas Activity Monitor Pri: (2RMQ-RQ301B)	(1)	*	29
b.	Particulate and Iodine Sampler Pri: (Filter Paper & Charcoal Cartridge for 2RMQ-RQ 1st Alt: (Continuous collection via RASP Pump) 2nd Alt: (Grab samples every 12 hours)	(1) 301) or	*	32
	Process Flow Rate Monitor	None	None	None

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ODCM CONTROLS: RETS INS	STRUMEN	T FOR GAS	EOUS REL	EASES		
d. Sampler Flow Rate Monitor Used for Particul and Iodine Sample Collection (see 3.b) Pri: (2RMQ-FIT301-1)	late	(1)	*	28B		
*During Releases via this pathway.						
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TABLE 3.3	-13 (continued)				
<b>BV-2 RADIOACTIVE GASEOUS EFFLU</b>	JENT MONITO	RING INSTRU	JMENTATION		
Pri = Primary Instruments,	Alt = Alternat	te Instruments			
INSTRUMENT	MINIMUM CHANNELS <u>OPERABLE</u>	APPLICABI	LITY <u>ACTION</u>		
a. Noble Gas Activity Monitor	(1)	*	29		
Pri: (2HVL-RQ112B)					
<ul> <li>b. Particulate and Iodine Sampler</li> <li>Pri: (Filter Paper &amp; Charcoal Cartridge for 2HVL-RQ 1st Alt: (Continuous collection via RASP Pump)</li> <li>2nd Alt: (Grab samples every 12 hours)</li> </ul>	(1) (112)	*	32		
c. Process Flow Rate Monitor	None	None	None		
d. Sampler Flow Rate Monitor Used for Particulate and Iodine Sample Collection (see 4.b) Pri: (2HVL-FIT112-1)	(1)	*	28B		
5. Waste Gas Storage Vault Vent (WV-2)					
a. Noble Gas Activity Monitor Pri: (2RMQ-RQ303B)	(1)	*	29		
<ul> <li>b. Particulate and Iodine Sampler</li> <li>Pri: (Filter Paper &amp; Charcoal Cartridge for 2RMQ-RC 1st Alt: (Continuous collection via RASP Pump)</li> <li>2nd Alt: (Grab samples every 12 hours)</li> </ul>	(1) Q303)	*	32		
c. Process Flow Rate Monitor	None	None	None		
d. Sampler Flow Rate Monitor Used for Particulate and Iodine Sample Collection (see 5.b) Pri: (2RMQ-FIT303-1)	(1)	*	28B		
· · ·					
*During Releases via this pathway.					

]	Beaver Valley F	Procedure Number: 1/2-ODC-3.03					
Title:		······································	Unit:	Level Of Use:			
ODCM: Cont	ols for RETS and REM	AP Programs	Revision:	Page Number:			
		ATTACHMENT F		40 01 80			
Page 8 of 15 ODCM CONTROLS: RETS INSTRUMENT FOR GASEOUS RELEASES							
	· · · · · · · · · · · · · · · · · · ·	TABLE 3 3-13 (continued)					
		ACTION STATEMENTS					
Action 27	APPLICABLE FOR TANKS OR BV-2 G	BATCH RELEASES OF BV-1 G ASEOUS WASTE STORAGE T	ASEOUS V ANKS	VASTE DECAY			
	With the number of cl OPERABLE requirer (GWDT's) or the Uni environment provided	hannels OPERABLE less than req nent, the contents of the Unit 1 G t 2 Gaseous Waste Storage Tanks I that prior to initiating (or resumi	uired by the aseous Wast (GWST's) ng) the relea	Minimum Channels te Decay Tanks may be released to the use:			
	1. At least two in two technicall release rate ca	ndependent samples of the tank's or y qualified members of the Facilit loulations and discharge valve line	content are a y Staff indep eup, or	nalyzed and at least endently verify the			
	2. Initiate contin ODCM Surve to the compar Control requir	uous monitoring with the compar- illance requirements applicable to able alternate monitoring channel rement.	able alternate the inoperal when used t	e monitoring channel. ble channel shall apply o satisfy this ODCM			
	Otherwise, suspend re	eleases of radioactive effluents via	. this pathwa	у.			
Action 28A	APPLICABLE FOR DEVICES OR BV-2	BV-1 SYSTEM EFFLUENT FLO PROCESS FLOWRATE MONIT	<u>OW RATE N</u> FORS	<u>MEASURING</u>			
	With the number of cl OPERABLE requirem	hannels OPERABLE less than req nent, effluent releases via this path	uired by the way may co	Minimum Channels intinue provided:			
	1. The system/pr be at the ODC	ocess flow rate is estimated at lea CM design value ⁽¹⁾ ), or	st once per 4	4 hours (or assumed to			
	2. Initiate contin ODCM Surve to the compar Control requir	uous monitoring with the compara illance requirements applicable to able alternate monitoring channel rement.	able alternate the inoperat when used t	e monitoring channel. ble channel shall apply o satisfy this ODCM			
⁽¹⁾ In lieu flow r	of estimating the syste tte can be assumed to b	m/process flow rate at least once be at the following ODCM design	per 4 hours, values:	the system/process			
flow rate can be assumed to be at the following ODCM design values: 1,450 cfm = BV-1 Gaseous Waste/Process Vent System (PV-1,2) 62,000 cfm = BV-1 Auxiliary Building Ventilation System (VV-1) 49,300 cfm = BV-1 Reactor Building/SLCRS (CV-1) 23,700 cfm = BV-2 SLCRS Unfiltered Pathway (VV-2) 59,000 cfm = BV-2 SLCRS Filtered Pathway (CV-2)							

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	<u> </u>		Procedure Nu	nher:	
]	Beav	er Valley Power Station	Flocedure Ind	1/2-ODC-3.03	
Title:			Unit:	Level Of Use: General Skill Reference	
ODCM: Cont	trals for	RETS and REMP Programs	Revision:	Page Number:	
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		ATTACHMENT F			
1	ODCM	CONTROLS: RETS INSTRUMENT FOR GA	SEOUS REI	EASES	
		<u>IABLE 3.3-13 (continued)</u>			
		ACTION STATEMENTS			
Action 28B	<u>APPI</u> 2 SA	LICABLE FOR BV-1 SAMPLER FLOW RATE MPLER FLOWRATE MONITORS	<u>MEASURIN</u>	IG DEVICES OR BV-	
	With OPEI	the number of channels OPERABLE less than re RABLE requirement, effluent releases via this pa	equired by the thway may co	Minimum Channels	
	1.	The sampler flow rate is estimated at least one	e per 4 hours	, or	
	2.	Initiate continuous monitoring with the compa ODCM Surveillance requirements applicable t to the comparable alternate monitoring channe Control requirement.	rable alternat o the inoperal el when used t	e monitoring channel. ble channel shall apply o satisfy this ODCM	
Action 29	APPLICABLE FOR CONTINUOUS RELEASES				
	With OPEI	the number of channels OPERABLE less than re RABLE requirement, effluent releases via this pa	equired by the thway may co	Minimum Channels ontinue provided:	
	1.	Grab samples (or local monitor readings) ⁽¹⁾ are grab samples are taken, these samples are to b 24 hours, or	e taken at leas e analyzed for	t once per 12 hours. If gross activity within	
	2.	Initiate continuous monitoring with the compa ODCM Surveillance requirements applicable t to the comparable alternate monitoring channe CONTROL requirement.	rable alternate o the inoperale l when used t	e monitoring channel. ble channel shall apply o satisfy this ODCM	
⁽¹⁾ For B the int case, 1 least c	V-2, th tended the loca	ere are situations where the local monitor (e.g.; monitoring function, but the communications are I monitor can be read at least once per 12 hours 12 hours.	the RM-80) is lost to the C in-lieu of obt	capable of performing ontrol Room. In this aining grab samples at	

]	Beaver Valley Power Station	Procedure Number: 1/2-ODC-3 03		
Title:		Unit:	Level Of Use:	
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	ODCM CONTROLS: RETS INSTRUMENT FOR GASE	EOUS REI	LEASES	
	TABLE 3.3-13 (continued)			
	ACTION STATEMENTS			
Action 30A	APPLICABLE FOR THE INITIAL BATCH PURGE O CONTAINMENT	F THE BY	<u>V-1 REACTOR</u>	
With the number of channels <u>OPERABLE</u> less than required by minimum Channels OPERABLE requirement, immediately suspend PURGING of Reactor Containment this pathway if both RM-1VS-104A and B are not OPERABLE with the purge/ext system in service. The following should also be noted:				
	1. As stated, this Action is applicable for INOPERA performing the initial batch purge of the reactor of immediately after reactor containment atmospher	ABLE mon containmer e equaliza	itors only when nt atmosphere (i.e.; , tion).	
	2. Since all other releases of reactor containment at batch purge) are considered continuous releases, Therefore, Action 29 is applicable for INOPERA continuous release of the reactor containment at the containment at	mosphere then this A BLE moni nosphere.	(i.e.; after the initial Action is not applicable. tors when performing a	
Action 30B	APPLICABLE FOR THE INITIAL BATCH PURGE O CONTAINMENT	F THE BV	/-2 REACTOR	
With the number of channels OPERABLE less than required by Minimum Cha OPERABLE requirement, immediately suspend PURGING of Reactor Contai this pathway if both 2HVR-RQ104A and 104B are not OPERABLE with the purge/exhaust system in service. The following should also be noted:				
	1. As stated, this Action is applicable for INOPERA performing the initial batch purge of the reactor of immediately after reactor containment atmospher	BLE mon containmen e equalizat	itors only when it atmosphere (i.e.; ion).	
	2. Since all other releases of reactor containment attraction batch purge) are considered continuous releases, Therefore, Action 29 is applicable for INOPERA continuous release of the reactor containment atm	mosphere ( then this A BLE moni nosphere.	(i.e.; after the initial action is not applicable. tors when performing a	
Action 32	APPLICABLE FOR CONTINUOUS RELEASES			
	With the number of channels OPERABLE less than requ OPERABLE requirement, effluent releases via this pathy samples are continuously collected with auxiliary samplin ODCM Control 3.11.2.1, Table 4.11-2, or sampled and a	ired by the vay may co ng equipme nalyzed or	Minimum Channels ontinue provided ent as required in nce every 12 hours.	

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	Beaver Valley Power	Station		Procedure Num	ber: /2_ODC_3_03			
Title:				Unit:	Level Of Use:			
				1/2	General Skill Reference			
ODC	M: Controls for RETS and REMP Progra	ams		Revision:	49 of 86			
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	ODCM CONTROLS: RETS IN	STRUMENT	FOR GASE	EOUS RELI	EASES			
	<u>TABLE 4.3-13</u>							
	<u>BV-1 RADIOACTIVE (</u> INSTRUMENTATION	GASEOUS EFFI SURVEILLAN	LUENT MON	<u>ITORING</u> EMENTS				
	Pri = Primary Instru	ments, $Alt = A$	lternate Instru	ments				
					CHANNEL			
		CHANNEL	SOURCE	CHANNI	EL OPERATIONAL			
	INSTRUMENT	CHECK	<u>CHECK</u>	CALIBRAT	<u>TION</u> <u>TEST</u>			
1. Ga	seous Waste/Process Vent System (PV-1/2)			(2)				
a.	Noble Gas Activity Monitor	Р	P ⁽⁴⁾	R ⁽³⁾	Q(1)			
	Alt For Continuous Release: (RM-1GW-109 Ch 5 channel for continuous releases via this pathway. Alt For Batch Releases: (See Action 27): RM-1G channel for batch releases of the BV-1 GWDT's or th same automatic isolation function as the primary cha GWDT's or the BV-2 GWST's via this pathway	5) This channel m W-109 Ch 5 SHA he BV-2 GWSTs. nnel, <u>THEN</u> ACT	ay only be used LL NOT be use Specifically, <u>Si</u> ION 27 shall be	as the compara of as the compa <u>INCE</u> this chan c followed for b	able alternate monitoring rable alternate monitoring nel does not perform the patch releases of the BV-1			
b.	Particulate and Iodine Sampler	w	NA	NA	NA			
	Pri: (Filter Paper & Charcoal Cartridge for RM-1GW 1st Alt: (Filter Paper & Charcoal Cartridge for RM-1 2nd Alt: (Continuous collection via RASP Pump 3rd Alt: (Grab samples every 12 hours)	7-109) or GW-110) or p) or						
с.	System Effluent Flow Rate Measuring Device Pri: (FR-1GW-108) or Alt: (RM-1GW-109 Ch 10)	Р	NA	R	Q			
d.	Sampler Flow Rate Measuring Device Used for Particulate and Iodine Sample Collection (see 1.b) Pri: (RM-1GW-109 Ch 15) or Alt: (Rotometer: FM-1GW-101, and Vacuum Gauge:	D* PI-1GW-135)	NA	R	Q			
2. Au	xiliary Building Ventilation System (VV-1; Also cal	led Ventilation V	⁷ ent)					
a.	Noble Gas Activity Monitor Pri: (RM-1VS-101B) or Alt: (RM-1VS-109 Ch 5)	D	M ⁽⁴⁾ , P ⁽⁴⁾ ***	R ⁽³⁾	Q ⁽²⁾			
b.	Particulate and Iodine Sampler Pri: (Filter Paper & Charcoal Cartridge for RM-1VS- 1st Alt: (Filter Paper & Charcoal Cartridge for RM-1 2nd Alt: (Continuous collection via RASP Pump 3rd Alt: (Grab samples every 12 hours)	W 109) or VS-111) or p) or	NA	NA	NA			
C.	System Effluent Flow Rate Measurement Device Pri: (FR-1VS-101) or Alt: (RM-1VS-109 Ch 10)	D	NA	R	Q			
d.	Sampler Flow Rate Measuring Device Used for Particulate and Iodine Sample Collection (see 2.b) Pri: (RM-1VS-109 Ch 15) or Alt: (Rotometer: FM-1VS-102, and Vacuum Gauge: I	D PI-1VS-659)	NA	R	Q			
* Dur. *** D	ing Releases via this pathway. uring purging of Reactor Containment via this pathway	у.						

	Requer Volley Dower Stat	ion	T	Procedure Numbe	r:
Title	Beaver valley rower Stat		1/2-ODC-3.03		
1106.				1/2	General Skill Reference
ODC	M: Controls for RETS and REMP Programs		Γ	Revision: F	age Number:
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	ODCM CONTROLS: RETS INSTRU	MENT FO	R GASE	OUS RELEA	ASES
	TABL	<u>E 4.3-13</u>			~
	BV-1 RADIOACTIVE GASEC	<u>)US EFFLU</u> /EILLANCI	<u>ENT MC</u> E REQUI	<u>NITORINO</u> REMENTS	Ļ
	Pri = Primary Instruments,	Alt = Alter	nate Inst	ruments	
		CHANNEL	SOURCE	CHANNE	CHANNEL L OPERATIONA
	INSTRUMENT	<u>CHECK</u>	CHECK	CALIBRAT	ION <u>TEST</u>
3. Re	actor Building/SLCRS (CV-1; Also called Elevated R	Release)	<b>a</b> -(4)	<b>n</b> (3)	$\sim$ ⁽²⁾
а.	Noble Gas Activity Monitor Pri: (RM-1VS-107B)or Alt: (RM-1VS-110 Ch 5)	D	M ^(*) , P ⁽⁴⁾ ***	R	Q
b.	Particulate and Iodine Sampler Pri: (Filter Paper & Charcoal Cartridge for RM-1VS-1 1st Alt: (Filter Paper & Charcoal Cartridge for RM-1V 2nd Alt: (Continuous collection via RASP Pump) or 3rd Alt: (Grab samples every 12 hours)	W 10) or VS-112) or	NA	NA	NA
c.	System Effluent Flow Rate Measuring Device Pri: (FR-1VS-112) or Alt: (RM-1VS-110 Ch 10)	D	NA	R	Q
d.	Sampler Flow Rate Measuring Device Used for Particulate and Iodine Sample Collection (see 3.b) Pri: (RM-1VS-110 Ch 15) or Alt: (Rotometer: FM-1VS-103, and Vacuum Gauge: Pi	D	NA	R	Q
		1110 000)			
*Dur ***D	ing releases via this pathway. uring purging of Reactor Containment via this pathy	way.			;
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	Beaver Valley Power Star	tion		Procedure Num 1/	ber: /2-ODC-3.03
Title:				Unit:	Level Of Use:
ODC	M Controls for RETS and REMP Programs			1/2 Revision:	Page Number:
		DAENTE E		8	<u>51 of 86</u>
	ATTACH Page 1 ODCM CONTROLS: RETS INSTRU	IMENT F 3 of 15 UMENT F	OR GASE	OUS RELI	EASES
	TABLE 4.3	<u>-13 (contin</u>	ued)	·	
	<b>BV-2 RADIOACTIVE GASE</b>	OUS EFFLI	JENT MO	<u>NITORING</u>	
	INSTRUMENTATION SUR	VEILLANC	E REQUIE	<u>REMENTS</u>	
	Pri = Primary Instruments,	Alt = A	lternate Ins	struments	
	INSTRUMENT	CHANNEL <u>CHECK</u>	SOURCE <u>CHECK</u>	CHANNE <u>CALIBRATI</u>	CHANNEI L OPERATION <u>ON <u>TEST</u></u>
1. SL	CRS Unfiltered Pathway (VV-2; Also called Ventila	tion Vent)	<b>x</b> (4)	$D^{(3)(6)}$	
a.	Noble Gas Activity Monitor Pri: (2HVS-RQ101B)	D	M``, P ⁽⁴⁾ ***	Rever	Q(5)
b.	Particulate and Iodine Sampler Pri: (Filter Paper & Charcoal Cartridge for 2HVS-RQ 1st Alt: (Continuous collection via RASP Pump) or 2nd Alt: (Grab samples every 12 hours)	W (101) or	NA	NA	. NA
c.	Process Flow Rate Monitor Pri: (Monitor Item 29 for 2HVS-VP101)	D	NA	R	Q
d.	Sampler Flow Rate Monitor Used for Particulate and Iodine Sample Collection (see 1.b) Pri: (2HVS-FIT101-1)	D	NA	R	Q
2. SL	CRS Filtered Pathway (CV-2; Also called Elevated	Release)	(4)		
a.	Noble Gas Activity Monitor Pri: (2HVS-RQ109B)	D	M ⁽⁴⁾ , P ⁽⁴⁾ ***	R ⁽³⁾⁽⁶⁾	Q ⁽³⁾
b.	Particulate and Iodine Sampler Pri: (Filter Paper & Charcoal Cartridge for 2HVS-RQ 1st Alt: (Continuous collection via RASP Pump) or 2nd Alt: (Grab samples every 12 hours)	W 2109 High Flo	NA ow Path) or	NA	NA
c.	Process Flow Rate Monitor Pri: (Monitor Item 29 for 2HVS-FR22) or 1st Alt: (2HVS-FI22A and FI22C) or 2nd Alt: (2HVS-FI22B and FI22D)	D	NA	R	Q
d.	Sampler Flow Rate Monitor Used for Particulate and Iodine Sample Collection (see 2.b) Pri: (Monitor Items 28 and 72 for 2HVS-DAU109B)	D	NA	R	Q
3. De a.	contamination Building Vent (DV-2) Noble Gas Activity Monitor Pri: (2RMQ-RQ301B)	D	M ⁽⁴⁾	R ⁽³⁾⁽⁶⁾	Q ⁽⁵⁾
b.	Particulate and Iodine Sampler Pri: (Filter Paper & Charcoal Cartridge for 2RMQ-RC 1st Alt: (Continuous collection via RASP Pump) or 2nd Alt: (Grab samples every 12 hours)	W Q301) or	NA	NA	NA
c.	Process Flow Rate Monitor	NA	NA	NA	NA
d.	Sampler Flow Rate Monitor Used for Particulate and Iodine Sample Collection (see 3.b) Priv (2PMO_FIT301_1)	D	NA	R	Q

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Procedure Number:       1/2-ODC-3 03       Title:       Unit:       Lored of Use:       I/2-ODC-3 03       Procedure Number:       Procedure Number:       BODCM: Controls for RETS and REMP Programs       ATTACHMENT F       Page 14 of 15       ODCM CONTROLS: RETS INSTRUMENT FOR GASEOUS RELEASES       TABLE 4.3-13 (continued)       BV-2 RADIOACTIVE GASEOUS EFFLUENT MONITORING       INSTRUMENT ATION SURVEIL LANCE REQUIREMENTS       Pri = Primary Instruments, Alt = Alternate Instruments       CHANNEL       CHANNEL       SOUCCE CHANNEL       OPERATIONAL       INSTRUMENT       CHANNEL       CHANNEL       OUTCE CALERATION       OPERATIONAL       CHANNEL       OPERATIONAL       CHANNEL       CHANNEL       CHANNEL       OUTCE CALIBRATION       INOBLE 4.3-13 (continued)       BV-2 RADIOACTIVE GASEOUS EFFLUENT MONITORING       INOBLE 63 ACTIVIE (GASEOUS CHECK <th colspa<="" th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th></th>	<th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>							
Tile: Usit Controls for RETS and REMP Programs The Controls for RETS and REMP Programs ATTACHIMENT F Page 14 of 15 ODCM CONTROLS: RETS INSTRUMENT FOR GASEOUS RELEASES TABLE 4.3-13 (continued) BV-2 RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS Pri = Primary Instruments, Alt = Alternate Instruments CHANNEL SOURCE CHANNEL OPERATION INSTRUMENT CHECK CHECK CALIBRATION IEST 4. Condensate Polishing Building Vent (CB-2) a. Noble Gas Activity Monitor Pri: (2HVL-RQ112B) b. Particulate and Iodine Sampler V NA NA NA NA C. Sampler Flow Rate Monitor Used for Particulate D NA R Q and Iodine Samples V NA NA NA NA A C. Sampler Flow Rate Monitor NA NA NA NA A C. Sampler Flow Rate Monitor NA NA NA NA A C. Sampler Flow Rate Monitor NA NA NA NA A C. Sampler Flow Rate Monitor NA NA NA A C. Sampler Flow Rate Monitor NA NA NA A C. Sampler Flow Rate Monitor NA NA NA A C. Sampler Flow Rate Monitor NA NA NA A C. Sampler Flow Rate Monitor NA NA NA A C. Sampler Flow Rate Monitor NA NA NA A C. Sampler Flow Rate Monitor NA NA NA A C. Sampler Flow Rate Monitor NA NA NA A C. Sampler Flow Rate Monitor NA NA NA A C. Sampler Flow Rate Monitor NA NA NA A C. Sampler Flow Rate Monitor NA NA NA A C. Sampler Flow Rate Monitor NA NA NA A C. Sampler Flow Rate Monitor NA NA NA A C. Sampler Flow Rate Monitor NA NA NA A C. Sampler Flow Rate Monitor NA NA NA A C. Sampler Flow Rate Monitor NA NA NA A C. Sampler Flow Rate Monitor NA NA NA A C. Sampler Flow Rate Monitor NA NA NA A C. Sampler Flow Rate Monitor NA NA NA A C. Sampler Flow Rate Monitor NA NA NA A C. Sampler Flow Rate Monitor NA NA NA A C. Sampler Flow Rate Monitor NA NA NA A C. Sampler Flow Rate Monitor NA NA NA A C. Sampler Flow Rate Monitor NA NA NA A C. Sampler Flow Rate Monitor NA NA NA A C. Sampler		Beaver Valley Power Stat	ion		Procedure Num 1	ber: /2-0D0	C-3 03	
Image: Display the image of	Title:				Unit:	Level Of	Use:	
ODCM: Controls for RETS and REMP Programs     Revision: 8     Page Number: 52 of 86       ATTACHMENT F       Page 14 of 15       ODCM CONTROLS: RETS INSTRUMENT FOR GASEOUS RELEASES       TABLE 4.3-13 (continued)       BV-2 RADIOACTIVE GASEOUS EFFLUENT MONITORING       INSTRUMENT FOR GASEOUS RELEASES       TABLE 4.3-13 (continued)       BV-2 RADIOACTIVE GASEOUS EFFLUENT MONITORING       INSTRUMENTATION SURVEILLANCE REQUIREMENTS       Pri = Primary Instruments, Alt = Alternate Instruments       CHANNEL       INSTRUMENT       CHANNEL       INSTRUMENT       CHANNEL       INSTRUMENT       CHANNEL       INSTRUMENT       CHANNEL       INSTRUMENT       INSTRUMENT       CHANNEL       INSTRUMENT       INSTRUMENT       CHANNEL       INSTRUMENT       INSTRUMENT       CHANNEL       INSTRUMENT       INSTRUMENT FOR GASEOUS RELEASES       INSTRUMENT       INSTRUMENT					1/2	Gener	al Skill Reference	
B       52 of 86         ATTACHMENT F         Page 14 of 15         ODCM CONTROLS: RETS INSTRUMENT FOR GASEOUS RELEASES         TABLE 4.3-13 (continued)         BV-2 RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION SURVEIL LANCE REQUIREMENTS         Pri = Primary Instruments, Alt = Alternate Instruments         CHANNEL CHANNEL         OURCE CHANNEL CHANNEL         OURCE CHANNEL OPERATIONAL TEST         A condensate Polishing Building Vent (CB-2)         a Noble Gas Activity Monitor         D         M ⁽⁴⁰ R ⁽³⁵⁾ Particulate and Iodine Sampler         W         NA	ODCM	Controls for RETS and REMP Programs		1	Revision:	Page Nu	mber:	
ATTACHMENT F Page 14 of 15 ODCM CONTROLS: RETS INSTRUMENT FOR GASEOUS RELEASES TABLE 4.3-13 (continued) BV-2 RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS Pri = Primary Instruments, Alt = Alternate Instruments Pri = Primary Instruments, Alt = Alternate Instruments CHANNEL SOURCE CHANNEL OPERATION INSTRUMENT CHECK CHECK CALIBRATION OPERATIONAL IEST 4. Condensate Polishing Building Vent (CB-2) a. Noble Gas Activity Monitor D M ⁽⁴⁾ R ^{(0)K0} Q ⁽⁵⁾ Pri: (2HVL-RQ112B) b. Particulate and Iodine Sampler W NA NA NA Pri: (Gritter Paper & Charcoal Cartridge for 2HVL-RQ112) or 1st Alt: (Continuous collection via RASP Pump) or 2nd Alt: (Grab samples every 12 hours) c. Process Flow Rate Monitor Used for Particulate D NA R q and Iodine Sample Collection (see 4.b) Pri: (2HVL-RQ1121) 5. Waste Gas Storage Vault Vent (WV-2) a. Noble Gas Activity Monitor D M ⁽⁴⁾ R ^{(0)K0} Q ⁽⁵⁾ Pri: (2HVL-FTT112-1) 5. Waste Gas Storage Vault Vent (WV-2) a. Noble Gas Activity Monitor MA NA NA NA NA NA NA NA NA NA NA NA NA NA A Sampler Flow Rate Monitor Used for Particulate D NA R Q ( ⁵⁰ ) Pri: (2HWL-RQ112) VENT VENT VENT VENT VENT VENT VENT VENT					8		52 of 86	
Page 14 of 15         ODCM CONTROLS: RETS INSTRUMENT FOR GASEOUS RELEASES         TABLE 4.3-13 (continued)         BV-2 RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS         Pri = Primary Instruments, Alt = Alternate Instruments         CHANNEL NSTRUMENT         CHANNEL OPERATIONAL CHECK       CHANNEL OPERATIONAL CHECK       CHANNEL CHANNEL OPERATIONAL TEST         A Noble Gas Activity Monitor Pri: (2HVL-RQ112B)       W       NA       NA         Noble Gas Activity Monitor Pri: (2HVL-RQ112B)       W       NA       NA         Noble Gas Activity Monitor       W       NA       NA       NA         Noble Gas Activity Monitor       W       NA       NA       NA         A Noble Gas Activity Monitor       W       NA       NA       NA         Noble Gas Activity Monitor       N       NA       NA       NA       NA         Noble Gas Activity Monitor       NA         <		ATTACH	MENT F					
ODCM CONTROLS: RETS INSTRUMENT FOR GASEOUS RELEASES         TABLE 4.3-13 (continued)         BV-2 RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS         Pri = Primary Instruments, Alt = Alternate Instruments         CHANNEL INSTRUMENT         CHANNEL CHECK       SOURCE CHANNEL OPERATIONAL CHECK       CHANNEL OPERATIONAL TEST         A condensate Polishing Building Vent (CB-2)       Noble Gas Activity Monitor Pri: (2HVL-RQ112B)       M M ⁴⁹ R ⁽³⁾⁽⁶⁾ Q ⁽⁵⁾ Pri: (2HVL-RQ112B)         Noble Gas Activity Monitor Pri: (Filter Paper & Charcoal Cartridge for 2HVL-RQ112) or 1st Alt: (Continuous collection via RASP Pump) or 2nd Alt: (Grab samples every 12 hours)       NA       NA       NA         C Process Flow Rate Monitor       NA       NA       NA         Swase Gas Storage Vault Vent (WV-2)         Noble Gas Activity Monitor Pri: (2HVL-FIT112-1)       NA       NA       NA         Noble Gas Activity Monitor       NA       NA         NOT       NA       NA         NA       NA       NA		Page 14	4 of 15					
TABLE 4.3-13 (continued)         BY-2 RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS         Pri = Primary Instruments, Alt = Alternet Instruments         Pri = Primary Instruments, Alt = Alternet Instruments         Note Channet, Source CHANNEL CHECK         INSTRUMENT         CHANNEL CHECK       CHANNEL CHECK         Noble Gas Activity Monitor       D       M ⁽⁴⁾ Clauser Colspan="4">CHANNEL OPERATIONAL IEST         I. Noble Gas Activity Monitor       D       M ⁽⁴⁾ R ⁽³⁾⁽⁶⁾ Q ⁽⁵⁾ Pri: (2HVL-RQ112B)         Noble Gas Activity Monitor       W       NA       NA         Pri: (Clutare and Iodine Sampler       W       NA       NA       NA         Pri: (Cluture and Iodine Sampler       W       NA       NA       NA         Alt: (Continuous collection via RASP Pump) or 2nd Alt: (Crostinuous collection (see 4.b))       NA       NA       NA         Pri: (2HVL-FIT112-1)       Subte Gas Storage Vault Vent (WV-2)       D       NM ⁽⁴⁾ R ⁽³⁾⁽⁶⁾ Q ⁽³⁾		ODCM CONTROLS: RETS INSTRU	MENT FO	R GASEO	DUS REL	EASES	5	
BV-2 RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS         Pri = Primary Instruments, Alt = Alternate Instruments         CHANNEL INSTRUMENT       CHANNEL CHECK       CHANNEL OPERATIONAL TEST         A Noble Gas Activity Monitor Pri: (2HVL-RQ112B)       D       M ⁽⁹⁾ C ^{HANNEL} OPERATIONAL TEST         A Noble Gas Activity Monitor Pri: (2HVL-RQ112B)       D       M ⁽⁹⁾ Q ⁽⁹⁾ Particulate and Iodine Sampler Pri: (Continuous collection via RASP Pump) or 2nd Alt: (Continuous collection (see 4.b) Pri: (2HVL-FITT112-1)       NA       NA         Storage Vault Vent (WV-2)         A Noble Gas Activity Monitor Pri: (2RMQ-RQ303B)       D       NA         NA       NA         Noble Gas Activity Monitor       D       NM ⁽⁹⁾ Q ⁽⁹⁾ PI: 2 (Continuous collection (see 4.b) Pri: (2HVL-FIT112-1)       Statt Continuous collection (see 4.b) Pri: (2HMQ-RQ303B)       Noble Gas Activity Monitor       D       NM ⁽⁹⁾ Q ⁽⁹⁾ PI: 2 (Colspan="4">Charcoal Cartr		TABLE 4.3-	13 (continue	<u>ed)</u>				
INSTRUMENTATION SURVEILLANCE REQUIREMENTS         Pri = Primary Instruments,       Alt = Alternate Instruments         CHANNEL INSTRUMENT       CHANNEL CHECK       COURCE CHANNEL CHECK       CHANNEL CALIBRATION       CHANNEL OPERATIONAL TEST         4. Condensate Polishing Building Vent (CB-2)       CHANNEL       CHANNEL CHECK       CHANNEL CHECK       CHANNEL CLECK       CHANNEL CALIBRATION       OPERATIONAL TEST         4. Condensate Polishing Building Vent (CB-2)       D       M ⁽⁴⁾ R ^(3X6) Q ⁽⁵⁾ a. Noble Gas Activity Monitor Pri: (2HVL-RQ112B)       D       M ⁽⁴⁾ R ^(3X6) Q ⁽⁶⁾ b. Particulate and Iodine Sampler 2nd Alt: (Grab samples collection via RASP Pump) or 2nd Alt: (Grab samples every 12 hours)       W       NA       NA       NA         c. Process Flow Rate Monitor Used for Particulate and Iodine Sample Collection (see 4.b) Pri: (2HVL-FIT112-1)       D       M ⁽⁴⁾ R ^(3X6) Q ⁽⁵⁾ b. Particulate and Iodine Samples Pri: (2RMQ-RQ303B)       W       NA       NA       NA         b. Particulate and Iodine Samples Pri: (Filter Paper & Charcoal Cartridge for 2RMQ-RQ303) or 1st Alt: (Continuous collection via RASP Pump) or 2nd Alt: (Grab samples every 12 hours)       W       NA       NA         c. Process Flow Rate Monitor       NA       NA       NA       NA         c. Process Flow Rate		<b>BV-2 RADIOACTIVE GASEC</b>	US EFFLU	ENT MC	NITORIN	١G		
Pri = Primary Instruments,       Alt = Alternate Instruments         CHANNEL INSTRUMENT       CHANNEL CHECK       SOURCE CHANNEL CHECK       CHANNEL CALIBRATION       CHANNEL OPERATIONAL TEST         4. Condensate Polishing Building Vent (CB-2)       a       Noble Gas Activity Monitor Pri: (2HVL-RQ112B)       D       M ⁽⁴⁾ R ⁽³⁾⁽⁶⁾ Q ⁽⁵⁾ b.       Particulate and Iodine Sampler Pri: (Filter Paper & Charcoal Cattridge for 2HVL-RQ112) or 1st Alt: (Continuous collection via RASP Pump) or 2nd Alt: (Grab samples every 12 hours)       W       NA       NA       NA         c.       Process Flow Rate Monitor       NA       NA       NA       NA         d.       Sampler Flow Rate Monitor Used for Particulate and Iodine Sample Collection (see 4.b) Pri: (2HVL-FIT112-1)       D       NA       R       Q ⁽⁵⁾ 5.       Vaste Gas Storage Vault Vent (WV-2)       D       M ⁽⁴⁾ R ⁽³⁾⁽⁶⁾ Q ⁽⁵⁾ a.       Noble Gas Activity Monitor Pri: (2RMQ-RQ303B)       D       M ⁽⁴⁾ R ⁽³⁾⁽⁶⁾ Q ⁽⁵⁾ b.       Particulate and Iodine Samples Pri: (2RMQ-RQ303B)       W       NA       NA       NA         c.       Process Flow Rate Monitor       SASP Pump) or 2nd Alt: (Grab samples every 12 hours)       NA       NA       NA         c.       Process Flow Rate Monitor		INSTRUMENTATION SURV	'EILLANCI	E REQUI	REMENT	S		
CHANNEL INSTRUMENTCHANNEL CHECKSOURCE CALIBRATIONCHANNEL OPERATIONAL TEST4. Condensate Polishing Building Vent (CB-2)a. Noble Gas Activity Monitor Pri: (2HVL-RQ112B)DM(4)R ⁽³⁾⁽⁶⁾ Q(5)b. Particulate and Iodine Sampler Pri: (Filter Paper & Charcoal Cartridge for 2HVL-RQ112) or 1st Alt: (Continuous collection via RASP Pump) or 2nd Alt: (Grab samples every 12 hours)WNANANAc. Process Flow Rate MonitorNANANANAd. Sampler Flow Rate Monitor Used for Particulate and Iodine Sample Collection (ise 4.b) Pri: (2HVL-FIT112-1)DM(4)R(3)(6)Q(5)5. Waste Gas Storage Vault Vent (WV-2)DM(4)R(3)(6)Q(5)a. Noble Gas Activity Monitor Pri: (2RMQ-RQ303B)DM(4)R(3)(6)Q(5)b. Particulate and Iodine Samples Pri: (Cilter Paper & Charcoal Cartridge for 2RMQ-RQ303) or 1st Alt: (Continuous collection via RASP Pump) or 2nd Alt: (Grab samples every 12 hours)DM(4)NANAc. Process Flow Rate MonitorNANANANANAd. Sampler Flow Rate MonitorDM(4)R(3)(6)Q(5)c. Pri: (CIRMQ-RQ303B)DM(4)NANAb. Particulate and Iodine Samples Pri: (CITIT2-1)WNANAc. Process Flow Rate MonitorNANANAd. Sampler Flow Rate MonitorNANANAd. Sampler Flow Rate Monitor Used for Particulate Pri: (CIRMQ-FIT303-1)NARQ <td></td> <td>Pri = Primary Instruments,</td> <td>Alt = Alte</td> <td>ernate Ins</td> <td>truments</td> <td></td> <td></td>		Pri = Primary Instruments,	Alt = Alte	ernate Ins	truments			
CHANNEL INSTRUMENTSOURCE CHECKCHANNEL CALIBRATIONOPERATIONAL TEST4. Condensate Polishing Building Vent (CB-2)CALIBRATIONTESTa. Noble Gas Activity Monitor Pri: (2HVL-RQ112B)DM(4)R(3)(6)Q(5)b. Particulate and Iodine Sampler Ist Alt: (Continuous collection via RASP Pump) or 2nd Alt: (Grab samples every 12 hours)WNANANAc. Process Flow Rate MonitorNANANANANAd. Sampler Flow Rate Monitor Used for Particulate and Iodine Sample Collection (see 4.b) Pri: (2HVL-FIT112-1)DM(4)R(3)(6)Q(5)5. Waste Gas Storage Vault Vent (WV-2) a. Noble Gas Activity Monitor Pri: (2RMQ-RQ303B)DM(4)R(3)(6)Q(5)b. Particulate and Iodine Samples Pri: (Filter Paper & Charcoal Cartridge for 2RMQ-RQ303) or 1st Alt: (Continuous collection via RASP Pump) or 2nd Alt: (Grab samples every 12 hours)DM(4)R(3)(6)Q(5)c. Process Flow Rate MonitorDM(4)R(3)(6)Q(5)c. Process Flow Rate MonitorDM(4)R(3)(6)Q(5)c. Process Flow Rate MonitorDM(4)NANAd. Sampler Flow Rate MonitorNANANANAd. CRCONTINUO					•		CHANNEL	
INSTRUMENT       CHECK       CHECK       CALIBRATION       TEST         4. Condensate Polishing Building Vent (CB-2)       a.       Noble Gas Activity Monitor       D       M ⁽⁴⁾ R ⁽³⁾⁽⁶⁾ Q ⁽⁵⁾ a.       Noble Gas Activity Monitor       D       M ⁽⁴⁾ R ⁽³⁾⁽⁶⁾ Q ⁽⁵⁾ b.       Particulate and Iodine Sampler       W       NA       NA       NA         Pri: (Filter Paper & Charcoal Cartridge for 2HVL-RQ112) or       1st Alt: (Continuous collection via RASP Pump) or       2nd Alt: (Grab samples every 12 hours)       2         c.       Process Flow Rate Monitor       NA       NA       NA       NA         d. Sampler Flow Rate Monitor Used for Particulate       D       NA       R       Q         and Iodine Sample Collection (see 4.b)       Pri: (2HVL-FIT112-1)       5.       Waste Gas Storage Vault Vent (WV-2)       a.       Noble Gas Activity Monitor       D       M ⁽⁴⁾ R ⁽³⁾⁽⁶⁾ Q ⁽⁵⁾ pri: (2RMQ-RQ303B)       D       M ⁽⁴⁾ R ⁽³⁾⁽⁶⁾ Q ⁽⁵⁾ 2         b.       Particulate and Iodine Samples       W       NA       NA       NA         pri: (2RMQ-RQ303B)       D       M ⁽⁴⁾ R ⁽³⁾⁽⁶⁾ Q ⁽⁵⁾ b.       Particulate an			CHANNEL	SOURCE	CHAN	NEL	OPERATIONAL	
4. Condensate Polishing Building Vent (CB-2)         a. Noble Gas Activity Monitor Pri: (2HVL-RQ112B)       D       M ⁽⁴⁾ R ⁽³⁾⁽⁶⁾ Q ⁽⁵⁾ b. Particulate and Iodine Sampler       W       NA       NA       NA         Pri: (Filter Paper & Charcoal Cartridge for 2HVL-RQ112) or 1st Alt: (Continuous collection via RASP Pump) or 2nd Alt: (Grab samples every 12 hours)       NA       NA       NA         c. Process Flow Rate Monitor       NA       NA       NA       NA         d. Sampler Flow Rate Monitor Used for Particulate Pri: (2HVL-FIT112-1)       NA       R       Q         s. Waste Gas Storage Vault Vent (WV-2)       a       Noble Gas Activity Monitor Pri: (2RMQ-RQ303B)       M ⁽⁴⁾ R ⁽³⁾⁽⁶⁾ Q ⁽⁵⁾ b. Particulate and Iodine Samples       W       NA       NA       NA         c. Process Flow Rate Monitor via RASP Pump) or 2nd Alt: (Grab samples Expression on the RASP Pump) or 2nd Alt: (Grab samples every 12 hours)       D       M ⁽⁴⁾ R ⁽³⁾⁽⁶⁾ Q ⁽⁵⁾ c. Process Flow Rate Monitor       NA       NA       NA       NA         d. Sampler Flow Rate Monitor       NA       NA       NA       NA         e. Noble Gas Activity Monitor Pri: (2RMQ-RQ303B)       W       NA       NA       NA         b. Particulate and Iodine Samples       W		INSTRUMENT	<u>CHECK</u>	<u>CHECK</u>	CALIBR	AHON	<u>TEST</u>	
a. Noble Gas Activity Monitor Pri: (2HVL-RQ112B)       D       M ⁽⁴⁾ R ⁽³⁾⁽⁶⁾ Q ⁽⁵⁾ b. Particulate and Iodine Sampler Pri: (Filter Paper & Charcoal Cartridge for 2HVL-RQ112) or 1st Alt: (Continuous collection via RASP Pump) or 2nd Alt: (Grab samples every 12 hours)       NA       NA       NA         c. Process Flow Rate Monitor       NA       NA       NA       NA         d. Sampler Flow Rate Monitor Used for Particulate Pri: (2HVL-FIT112-1)       NA       R       Q         s. Noble Gas Activity Monitor Pri: (2HVL-FIT112-1)       D       M ⁽⁴⁾ R ⁽³⁾⁽⁶⁾ Q ⁽⁵⁾ s. Noble Gas Activity Monitor Pri: (2RMQ-RQ303B)       D       M ⁽⁴⁾ R ⁽³⁾⁽⁶⁾ Q ⁽⁵⁾ b. Particulate and Iodine Samples Pri: (Filter Paper & Charcoal Cartridge for 2RMQ-RQ303) or 1st Alt: (Continuous collection via RASP Pump) or 2nd Alt: (Grab samples every 12 hours)       W       NA       NA       NA         c. Process Flow Rate Monitor Used for Particulate and Iodine Sample Collection (see 5.b) Pri: (2RMQ-FIT303-1)       NA       NA       NA       NA	4. Conc	Jensate Polishing Building Vent (CB-2)						
b.Particulate and Iodine SamplerWNANANAPri: (Filter Paper & Charcoal Cartridge for 2HVL-RQ112) or 1st Alt: (Continuous collection via RASP Pump) or 2nd Alt: (Grab samples every 12 hours)NANANAc.Process Flow Rate MonitorNANANANAd.Sampler Flow Rate Monitor Used for Particulate and Iodine Sample Collection (see 4.b) Pri: (2HVL-FIT112-1)NARQ5.Waste Gas Storage Vault Vent (WV-2)DM ⁽⁴⁾ R ⁽³⁾⁽⁶⁾ Q ⁽⁵⁾ a.Noble Gas Activity Monitor Pri: (2RMQ-RQ303)DM ⁽⁴⁾ R ⁽³⁾⁽⁶⁾ Q ⁽⁵⁾ b.Particulate and Iodine Samples Pri: (Continuous collection via RASP Pump) or 2nd Alt: (Grab samples every 12 hours)WNANANAc.Process Flow Rate MonitorNANANANANAd.Sampler Flow Rate MonitorDM ⁽⁴⁾ R ⁽³⁾⁽⁶⁾ Q ⁽⁵⁾ c.Process Flow Rate MonitorNANANANAd.Sampler Flow Rate MonitorNANANANAd.Sampler Flow Rate Monitor Used for Particulate and Iodine Sample Collection (see 5.b) Pri: (2RMQ-FIT303-1)NANANANA	<b>a.</b> 1 H	Noble Gas Activity Monitor Pri: (2HVL-RQ112B)	D	M ⁽⁴⁾	R ⁽	3)(6)	Q ⁽⁵⁾	
2nd Alt: (Grab samples every 12 hours)NANANANAc.Process Flow Rate MonitorUsed for Particulate DDNARQand Iodine Sample Collection (see 4.b) Pri: (2HVL-FIT112-1)DNARQ5. Waste Gas Storage Vault Vent (WV-2)JJSSa.Noble Gas Activity Monitor Pri: (2RMQ-RQ303B)DM ⁽⁴⁾ R ⁽³⁾⁽⁶⁾ Q ⁽⁵⁾ b.Particulate and Iodine Samples Pri: (Filter Paper & Charcoal Cartridge for 2RMQ-RQ303) or Ist Alt: (Continuous collection via RASP Pump) or 2nd Alt: (Grab samples every 12 hours)NANANAc.Process Flow Rate MonitorNANANANAd.Sampler Flow Rate Monitor Used for Particulate and Iodine Sample Collection (see 5.b) Pri: (2RMQ-FIT303-1)NANANA	b. ] I	Particulate and Iodine Sampler Pri: (Filter Paper & Charcoal Cartridge for 2HVL-RQ 1st Alt: (Continuous collection via RASP Pump) or	W 112) or	NA	N	ÍA	NA	
<ul> <li>c. Process Flow Rate Monitor</li> <li>NA</li> <li>R</li> <li>Q</li> <li>Sampler Flow Rate Monitor</li> <li>NA</li> <li>NA</li> <li>NA</li> <li>R</li> <li>Q</li> <li>Sampler Flow Rate Monitor Used for Particulate</li> <li>D</li> <li>NA</li> <li>NA</li> <li>NA</li> <li>NA</li> <li>R</li> <li>Q</li> <li>Antipolo in the sample Collection (see 5.b)</li> <li>Pri: (2RMQ-FIT303-1)</li> <li>NA</li> <li>NA</li></ul>	2	2nd Alt: (Grab samples every 12 hours)						
d. Sampler Flow Rate Monitor Used for Particulate and Iodine Sample Collection (see 4.b) Pri: (2HVL-FIT112-1)NARQ5. Waste Gas Storage Vault Vent (WV-2)DM(4)R(3)(6)Q(5)a. Noble Gas Activity Monitor Pri: (2RMQ-RQ303B)DM(4)R(3)(6)Q(5)b. Particulate and Iodine Samples Pri: (Filter Paper & Charcoal Cartridge for 2RMQ-RQ303) or 1st Alt: (Continuous collection via RASP Pump) or 2nd Alt: (Grab samples every 12 hours)WNANANAc. Process Flow Rate Monitor and Iodine Sample Collection (see 5.b) Pri: (2RMQ-FIT303-1)NANARQ	c. 1	Process Flow Rate Monitor	NA	NA	N	A	NA	
<ul> <li>5. Waste Gas Storage Vault Vent (WV-2)</li> <li>a. Noble Gas Activity Monitor Pri: (2RMQ-RQ303B)</li> <li>b. Particulate and Iodine Samples Pri: (Filter Paper &amp; Charcoal Cartridge for 2RMQ-RQ303) or 1st Alt: (Continuous collection via RASP Pump) or 2nd Alt: (Grab samples every 12 hours)</li> <li>c. Process Flow Rate Monitor Sampler Flow Rate Monitor Used for Particulate and Iodine Sample Collection (see 5.b) Pri: (2RMQ-FIT303-1)</li> </ul>	d. S 2 1	Sampler Flow Rate Monitor Used for Particulate and Iodine Sample Collection (see 4.b) Pri: (2HVL-FIT112-1)	D	NA	]	2	Q	
<ul> <li>a. Noble Gas Activity Monitor Pri: (2RMQ-RQ303B)</li> <li>b. Particulate and Iodine Samples Pri: (Filter Paper &amp; Charcoal Cartridge for 2RMQ-RQ303) or 1st Alt: (Continuous collection via RASP Pump) or 2nd Alt: (Grab samples every 12 hours)</li> <li>c. Process Flow Rate Monitor Ised for Particulate and Iodine Sample Collection (see 5.b) Pri: (2RMQ-FIT303-1)</li> </ul>	5. Wası	te Gas Storage Vault Vent (WV-2)						
<ul> <li>b. Particulate and Iodine Samples W NA NA NA NA Pri: (Filter Paper &amp; Charcoal Cartridge for 2RMQ-RQ303) or 1st Alt: (Continuous collection via RASP Pump) or 2nd Alt: (Grab samples every 12 hours)</li> <li>c. Process Flow Rate Monitor Used for Particulate D NA NA NA</li> <li>d. Sampler Flow Rate Monitor Used for Particulate D NA R Q and Iodine Sample Collection (see 5.b) Pri: (2RMQ-FIT303-1)</li> </ul>	a. 1 H	Noble Gas Activity Monitor Pri: (2RMQ-RQ303B)	D	· M ⁽⁴⁾	R ⁽	3)(6)	Q ⁽⁵⁾	
<ul> <li>c. Process Flow Rate Monitor</li> <li>NA</li> <li>NA</li></ul>	<b>b. 1</b> H J 2	Particulate and Iodine Samples Pri: (Filter Paper & Charcoal Cartridge for 2RMQ-RQ Ist Alt: (Continuous collection via RASP Pump) or 2nd Alt: (Grab samples every 12 hours)	W 303) or	NA	N	A	NA	
d. Sampler Flow Rate Monitor Used for Particulate D NA R Q and Iodine Sample Collection (see 5.b) Pri: (2RMQ-FIT303-1)	c. I	Process Flow Rate Monitor	NA	NA	N	A	NA	
	d. S 2 H	Sampler Flow Rate Monitor Used for Particulate and Iodine Sample Collection (see 5.b) Pri: (2RMQ-FIT303-1)	D	NA	I	ર	Q	

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Beaver Valley Power Station	Procedure No	umber: 1/2-ODC-3.03
Title:	Unit:	Level Of Use:
ODCM: Controls for RETS and REMP Programs	Revision:	Page Number:
ATTACHMENT E	8	53 of 86
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ODCM CONTROLS: RETS INSTRUMENT FOR GAS	EOUS RE	LEASES
TABLE 4.3-13 (continued)		
TABLE NOTATION		
⁽¹⁾ The CHANNEL OPERATIONAL TEST shall also demonstrate pathway and Control Room Alarm Annunciation occurs if any o	e that auto of the follo	matic isolation of this wing conditions exist:
a. Instrument indicates measured levels above the alarm/tr	ip setpoint	
b. Downscale failure.		
c. Instrument controls not set in operate mode.		
(2) The CHANNEL OPERATIONAL TEST shall also demonstrat Annunciation occurs if any of the following conditions exist:	e that Con	trol Room Alarm
a. Instrument indicates measured levels above the alarm/tr	ip setpoint	
b. Downscale failure.		
c. Instrument controls not set in operate mode.		
(3) The initial CHANNEL CALIBRATION for radioactivity measure performed using one or more of the reference standards certifies or using standards that have been obtained from suppliers that pre- assurance activities with NBS. These standards should permit of intended range of energy and rate capabilities. For subsequent sources that have been related to the initial calibration should be per 18 months. This can normally be accomplished during refut	arement ins d be Natio participate calibrating CHANNE e used, at i eling outag	strumentation shall be nal Bureau of Standards in measurement the system over its L CALIBRATION, ntervals of at least once ses.
<ul> <li>(4) A SOURCE CHECK may be performed utilizing the installed n a portable source to obtain an upscale increase in the existing corresponse.</li> </ul>	neans or fla ount rate to	ashing the detector with o verify channel
⁽⁵⁾ The CHANNEL OPERATIONAL TEST shall also demonstrate Annunciation occurs if the instrument indicates measured levels	e that Cont above the	trol Room Alarm alarm/trip setpoint.
⁽⁶⁾ The CHANNEL CALIBRATION shall also demonstrate that C occurs if either of the following conditions exist:	Control Roc	om Alarm Annunciation
<ol> <li>Downscale failure.</li> <li>Instrument controls are not set in operate mode.</li> </ol>		

Title:       Dist.       Dist. <t< th=""><th colspan="5">Beaver Valley Power Station Procedure Number:</th></t<>	Beaver Valley Power Station Procedure Number:						
II/2       General Skill Referen         ODCM: Controls for RETS and REMP Programs       II/2       General Skill Referen         Revision:       Fage Number:       54 of 86         ATTACHMENT G       Page 1 of 5       ODCM CONTROLS: LIQUID EFFLUENT CONCENTRATION         CONTROLS: LIQUID EFFLUENT CONCENTRATION       Intervention       State of the state of th	Title:		Unit:	Level Of Use:			
ODCM:       Controls for RETS and REMP Programs       Revision:       Page Number:         ATTACHMENT G       Page 1 of 5       ODCM CONTROLS: LIQUID EFFLUENT CONCENTRATION         CONTROLS:       LIQUID EFFLUENT CONCENTRATION         3.11.1.1       In accordance with T.S. 5.5.2.b and T.S. 5.5.2.c, the concentration of radioactive mater released at any time from the site (see 1/2-ODC-2.01, Figure 5-1) shall be limited to 10 times the EC's specified in 10 CFR Part 20, Appendix B (20.1001-20.2402), Table 2, Column 2 for radionuclides other than dissolved or entrained noble gases. This is referr to as the ODCM Effluent Concentration Limit (OEC). For dissolved or entrained noble gases, the concentration shall be limited to 2E-4 uCi/ml total activity.         Applicability:       At all times.         Action:       a.         a.       With the concentration of radioactive material released from the site to unrestricted areas exceeding the above limits; immediately restore the concentration within the above limits, and b.         b.       Submit a Special Report to the Commission within 30 days in accordance with 10 CFR 20.2203(a)(2)(v) and 10 CFR 50.4(b)(1).         c.       The provisions of ODCM CONTROL 3.0.3 are not applicable.         SURVEILLANCE REQUIREMENTS			1/2	General Skill Reference			
ATTACHMENT G Page 1 of 5 ODCM CONTROLS: LIQUID EFFLUENT CONCENTRATION CONTROLS: LIQUID EFFLUENT CONCENTRATION 3.11.1.1 In accordance with T.S. 5.5.2.b and T.S. 5.5.2.c, the concentration of radioactive mater released at any time from the site (see 1/2-ODC-2.01, Figure 5-1) shall be limited to 10 times the EC's specified in 10 CFR Part 20, Appendix B (20.1001-20.2402), Table 2, Column 2 for radionuclides other than dissolved or entrained noble gases. This is referr to as the ODCM Effluent Concentration Limit (OEC). For dissolved or entrained noble gases, the concentration shall be limited to 2E-4 uCi/ml total activity. Applicability: At all times. Action: a. With the concentration of radioactive material released from the site to unrestricted areas exceeding the above limits; immediately restore the concentration within the above limits, and b. Submit a Special Report to the Commission within 30 days in accordance with 10 CFR 20.2203(a)(2)(v) and 10 CFR 50.4(b)(1). c. The provisions of ODCM CONTROL 3.0.3 are not applicable. SURVEILLANCE REQUIREMENTS 4.11.1.1 Radioactive liquid wastes shall be sampled and analyzed according to the sampling and analysis program of ODCM Control 3.11.1.1, Table 4.11-1*. 4.11.1.2 The results of radioactive analysis shall be used in accordance with 1/2-ODC-2.01 to assure that the concentration at the point of release are maintained within the limits of	ODCM: Cont	trols for RETS and REMP Programs	Revision: 8	Page Number: 54 of 86			
Page 1 of 5 ODCM CONTROLS: LIQUID EFFLUENT CONCENTRATION CONTROLS: LIQUID EFFLUENT CONCENTRATION 3.11.1.1 In accordance with T.S. 5.5.2.b and T.S. 5.5.2.c, the concentration of radioactive mater released at any time from the site (see 1/2-ODC-2.01, Figure 5-1) shall be limited to 10 times the EC's specified in 10 CFR Part 20, Appendix B (20.1001-20.2402), Table 2, Column 2 for radiouclides other than dissolved or entrained noble gases. This is refer- to as the ODCM Effluent Concentration Limit (OEC). For dissolved or entrained noble gases, the concentration shall be limited to 2E-4 uCi/ml total activity. Applicability: At all times. Action: a. With the concentration of radioactive material released from the site to unrestricted areas exceeding the above limits; immediately restore the concentration within the above limits, and b. Submit a Special Report to the Commission within 30 days in accordance with 10 CFR 20.2203(a)(2)(v) and 10 CFR 50.4(b)(1). c. The provisions of ODCM CONTROL 3.0.3 are not applicable. SURVEILLANCE REQUIREMENTS 4.11.1.1 Radioactive liquid wastes shall be sampled and analyzed according to the sampling and analysis program of ODCM Control 3.11.1.1, Table 4.11-1*. 4.11.1.2 The results of radioactive analysis shall be used in accordance with 1/2-ODC-2.01 to assure that the concentration at the point of release are maintained within the limits of	· · · · · · · · · · · · · · · · · · ·	ATTACHMENT G					
ODCM CONTROLS: LIQUID EFFLUENT CONCENTRATION CONTROLS: LIQUID EFFLUENT CONCENTRATION 3.11.1.1 In accordance with T.S. 5.5.2.b and T.S. 5.5.2.c, the concentration of radioactive mater released at any time from the site (see 1/2-ODC-2.01, Figure 5-1) shall be limited to 10 times the EC's specified in 10 CFR Part 20, Appendix B (20.1001-20.2402), Table 2, Column 2 for radionuclides other than dissolved or entrained noble gases. This is referr to as the ODCM Effluent Concentration Limit (OEC). For dissolved or entrained noble gases, the concentration shall be limited to 2E-4 uCi/ml total activity. Applicability: At all times. Action: a. With the concentration of radioactive material released from the site to unrestricted areas exceeding the above limits; immediately restore the concentration within the above limits, and b. Submit a Special Report to the Commission within 30 days in accordance with 10 CFR 20.2203(a)(2)(v) and 10 CFR 50.4(b)(1). c. The provisions of ODCM CONTROL 3.0.3 are not applicable. SURVEILLANCE REQUIREMENTS 4.11.1.1 Radioactive liquid wastes shall be sampled and analyzed according to the sampling and analysis program of ODCM Control 3.11.1.1, Table 4.11-1*. 4.11.1.2 The results of radioactive analysis shall be used in accordance with 1/2-ODC-2.01 to assure that the concentration at the point of release are maintained within the limits of	Page 1 of 5						
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SURVEILLANCE REQUIREMENTS         4.11.1.1.1       Radioactive liquid wastes shall be sampled and analyzed according to the sampling and analysis program of ODCM Control 3.11.1.1, Table 4.11-1*.         4.11.1.1.2       The results of radioactive analysis shall be used in accordance with 1/2-ODC-2.01 to assure that the concentration at the point of release are maintained within the limits of	c. The p	provisions of ODCM CONTROL 3.0.3 are not applicable.					
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4.11.1.1.2 The results of radioactive analysis shall be used in accordance with 1/2-ODC-2.01 to assure that the concentration at the point of release are maintained within the limits of	4.11.1.1.1	Radioactive liquid wastes shall be sampled and analyzed a analysis program of ODCM Control 3.11.1.1, Table 4.11	according t -1*.	o the sampling and			
ODCM CONTROL 3.11.1.1	4.11.1.1.2	The results of radioactive analysis shall be used in accord assure that the concentration at the point of release are m ODCM CONTROL 3.11.1.1	ance with I naintained v	1/2-ODC-2.01 to vithin the limits of			
4.11.1.1.3 When BV-1 primary to secondary leakage exceeds 0.1 gpm (142 gpd), samples of the Turbine Building Sump shall be obtained every 8 hours to ensure that the Turbine Building Sump concentration does not exceed 1 OEC. Once it is determined that an OEC is reached, the Turbine Building Sump shall be routed to the Chemical Waste Sump.	4.11.1.1.3	When BV-1 primary to secondary leakage exceeds 0.1 gr Turbine Building Sump shall be obtained every 8 hours to Sump concentration does not exceed 1 OEC. Once it is reached, the Turbine Building Sump shall be routed to th	om (142 gp o ensure tha determined e Chemical	d), samples of the at the Turbine Building that an OEC is Waste Sump.			

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	Beaver Valley Power Station	Procedure Nu	$\frac{1}{2} ODC_3 O3$
Title:		Unit:	Level Of Use:
		1/2	General Skill Reference
ODCM: Con	trols for RETS and REMP Programs	Revision: 8	Page Number: 55 of 86
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	Page 2 of 5		
	ODCM CONTROLS: LIQUID EFFLUENT C	ONCENTRATI	ON
SURVEILL	ANCE REQUIREMENTS (continued)		
4.11.1.1.4	When BV-2 primary to secondary leakage exceeds Turbine Building Sump shall be obtained every 8 h Sump concentration does not exceed 1 OEC. Onc reached, the Turbine Building Sump shall be routed tank (2SGC-TK21A or 2SGC-TK21B).	s 0.1 gpm (142 g ours to ensure t e it is determine d to Steam Gene	pd), samples of the hat the Turbine Building d that an OEC is erator blowdown hold
4.11.1.1.5	Prior to the BV-2 Recirculation Drain Pump(s) (21 basin 16, a grab sample will be taken. The samples sensitivity of at least 1E-7 uCi/ml. Water volume of number of pump operations unless alternate flow of	DAS-P215A/21 s will be analyze discharged shall or volume instrue	5B) discharging to catch d for gross activity at a be estimated from the mentation is provided.
·			
* Radioactive as specified i pump discha	liquid discharges are normally via batch modes. BV-1 and BV in ODCM SURVEILLANCE REQUIREMENT 4.11.1.1.3 and urge shall be monitored as specified in ODCM SURVEILLANC	7-2 Turbine Buildir 4.11.1.1.4. The B CE REQUIREMEN	ng Drains shall be monitore V-2 Recirculation drain IT 4.11.1.1.5, respectively.

$\begin{array}{c c c c c c c c c c c c c c c c c c c $	e:			Ū	nit:	Level Of Use:	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $					<u>1/2</u>	General Skill H	lete
ATTACHMENT G Page 3 of 5 ODCM-CONTROLS: LIQUID EFFLUENT CONCENTRATION TABLE 4.11-1RADIOACTIVE LIQUID WASTE SAMPLING AND ANALYSIS PROGRAMRADIOACTIVE LIQUID WASTE SAMPLING AND ANALYSIS PROGRAMLIQUID RELEASE TYPESAMPLING FREQUENCYMINIMUM ANALYSIS FREQUENCYTYPE OF ACTIVITY ANALYSISLOWER LIMIT OF DETECTION (LLD) (uCi/ml) ^(a) A. Batch Waste Release Tanks ^(d) P Each Batch ^(h) P Each Batch ^(h) Principal Gamma Emitters ^(f) P Each Batch ^(h) M Composite ^(b) Dissolved And Gross Alpha1E-5 Gross AlphaB. Continuous ReleasesGrab Sample ^(g) W Composite ^(c) Sr-89, Sr-90 Fre-55SE-8 E-7 Emitters ^(f)	OCM: Controls for RE	fS and REMP P	rograms		8	56 of 8	₹6
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	ODCM	CONTROLS:	ATTACHMEN Page 3 of 5 LIQUID EFFLI	T G JENT CONCEN	ITRATIC	ON	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $			<u>TABLE 4.1</u>	<u>1-1</u>			
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	RADIOACT	IVE LIQUID W	ASTE SAMPL	ING AND ANAI	LYSIS P	ROGRAM	
A. Batch Waste Release Tanks ^(d) P Each Batch ^(h) P Each Batch ^(h) Principal Gamma Emitters ^(f) 5E-7Release Tanks ^(d) Each Batch ^(h) Each Batch ^(h) I-131IE-6P One Batch/M ^(h) M One Batch/M ^(h) Dissolved And Entrained Gases (Gamma Emitters)IE-5P Each Batch ^(h) M 	LIQUID RELEASE TYPE	SAMPLING FREQUENCY	MINIMUM ANALYSIS FREQUENCY	TYPE OF ACTIVITY ANALYSIS	LC LIN DET (uC	OWER MIT OF ECTION LLD) Ci/ml) ^(a)	
$\begin{array}{ c c c c c c c } \hline B. Continuous Releases^{(eXg)}} \end{array} \begin{array}{ c c c c c c } \hline P & M & II-131 & IE-6 \\ \hline P & M & Dissolved And & IE-5 \\ \hline Composite^{(b)} & H-3 & IE-5 \\ \hline Gross Alpha & IE-7 \\ \hline Fe-55 & IE-6 \\ \hline Fe-55 & IE-6 \\ \hline Fentiters^{(r)} & Fe-7 \\ \hline Emitters^{(r)} & Fe-7 \\ \hline Emitters^{(r)} & Fe-7 \\ \hline Fertical Gamma & 5E-7 \\ \hline Fertical Gamma & 5E-7 \\ \hline Fertical Gamma & 5E-7 \\ \hline Fertical Gamma & Fe-7 \\ \hline Fert$	A. Batch Waste Release Tanks ^(d)	P Each Batch ^(h)	P Each Batch ^(h)	Principal Gamm Emitters ^(f)	na	5E-7	
$\begin{array}{ c c c c c }\hline P & M & H-3 & 1E-5 \\ \hline Each Batch^{(h)} & Composite^{(h)} & Gross Alpha & 1E-7 \\ \hline P & Q & Sr-89, Sr-90 & 5E-8 \\ \hline Each Batch^{(h)} & Composite^{(h)} & Fe-55 & 1E-6 \\ \hline B. Continuous & Grab Sample^{(g)} & W & Principal Gamma & 5E-7 \\ \hline Releases^{(eXg)} & Grab Sample^{(g)} & W & Composite^{(c)} & Fe-55 & 1E-6 \\ \hline \end{array}$		P One Batch/M ^(h)	М	I-131 Dissolved And Entrained Gase (Gamma Emitte	d es ers)	<u>1E-6</u> 1E-5	
P Each Batch(h)Q Composite(b)Sr-89, Sr-905E-8B. Continuous Releases(eXg)Grab Sample(g)W Composite(c)Principal Gamma Emitters(f)5E-7		P Each Batch ^(h)	M Composite ^(b)	H-3 Gross Alpha		1E-5 1E-7	
Each BatchCompositeFe-551E-6B. Continuous ReleasesGrab SampleW CompositePrincipal Gamma Emitters5E-7		P	Q	Sr-89, Sr-90		5E-8	
B. Continuous Releases ^{(e)(g)} Grab Sample ^(g) W Principal Gamma 5E-7 Composite ^(c) Emitters ^(f)		Each Batch ^(h)	Composite ^(b)	Fe-55		1E-6	
	B. Continuous Releases ^{(e)(g)}	Grab Sample ^(g)	W Composite ^(c)	Principal Gamm Emitters ^(f)	na :	5E-7	
I-131 IE-6				I-131		1E-6	
Grab Sample ^(g) M Dissolved And 1E-5 Entrained Gases (Gamma Emitters)		Grab Sample ^(g)	М	Dissolved And Entrained Gase (Gamma Emitte	i es ers)	1E-5	
Grab Sample ^(g) M H-3 1E-5		Grab Sample ^(g)	M	H-3		1E-5	
Composite ^(c) Gross Alpha 1E-7			Composite ^(c)	Gross Alpha		1E-7	
Grab Sample ^(g) Q Sr-89, Sr-90 5E-8		Grab Sample ^(g)	Q	Sr-89, Sr-90	· · · · ·	5E-8	
Composite ^(c) Fe-55 1E-6		-	Composite ^(c)	Fe-55		1E-6	

Denver Valley Derver Station	Procedure Nu	mber:
Beaver valley rower Station	T T= 14.	1/2-ODC-3.03
Thue:	1/2	General Skill Reference
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Page 4 of 5		ON
ODCM CONTROLS: LIQUID EFFLUENT CONCE		UN
TABLE 4.11-1 (continued)		
TABLE NOTATION		
<ul> <li>(a) The LLD is the smallest concentration of radioactive material in a 95% probability with 5% probability of falsely concluding that a bl "real" signal.</li> </ul>	sample tha lank obser	at will be detected with vation represents a
For a particular measurement system (which may include radioch	nemical sep	paration):
LLD = 4.66  Sb		
(E)(V)(2.22)(Y) $\exp(-\lambda\Delta T)$		
where:		
LLD is the lower limit of detection as defined above (as pCi per	unit mass	or volume);
$S_b$ is the standard deviation of the background counting rate or c sample as appropriate (as counts per minute);	of the coun	ting rate of a blank
E is the counting efficiency (as counts per transformation);		
V is the sample size (in units of mass or volume);		
2.22 is the number of transformations per minute per picocurie;		
Y is the fractional radiochemical yield (when applicable);	·	
$\lambda$ is the radioactive decay constant for the particular radionuclide	e;	
$\Delta T$ is the elapsed time between sample collection (or end of the time of counting (for environmental samples, not plant effluent s	sample col amples).	lection period) and
The value of $S_b$ used in the calculation of the LLD for a detection actual observed variance of the background counting rate or of t samples (as appropriate) rather than on an unverified theoreticall values of E, V, Y and $\Delta T$ should be used in the calculations.	n system s he countin y predicte	hall be based on the g rate of the blank d variance. Typical
The LLD is defined as an <u>a priori</u> (before the fact) limit represent measurement system and not as <u>a posteriori</u> (after the fact) limit	ting the ca for a partic	pability of a cular measurement.

	Beaver Valley Power Station	Procedure N	$\frac{1/2}{1/2} ODC = 3 O2$
Title:		Unit:	Level Of Use:
		1/2	General Skill Reference
ODCI	M: Controls for RETS and REMP Programs	Revision:	Page Number: 58 of 86
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	Page 5 of 5		
	ODCM CONTROLS: LIQUID EFFLUENT C	ONCENTRATI	ION
	TABLE 4 11-1 (continued	D)	
		-2	
	TABLE NOTATION		
(b)	A composite sample is one in which the quantity of liquid of liquid waste discharged and in which the method of sam which is representative of the liquids released.	sampled is prop ppling employed	ortional to the quantity results in a specimen
(c)	To be representative of the quantities and concentrations of effluents, samples shall be collected continuously in propo- stream. Prior to analyses, all samples taken for the compo- for the composite sample to be representative of the efflue	of radioactive martion to the rate rtion to the rate site shall be tho ont release.	aterials in liquid of flow of the effluent roughly mixed in order
(d)	A batch release exists when the discharge of liquid wastes sampling for analyses, each batch shall be isolated, and the representative sampling.	is from a discre en thoroughly mi	te volume. Prior to ixed to assure
(c)	A continuous release exists when the discharge of liquid w e.g., from a volume of a system having an input flow durin from the Turbine Building Drains and the AFW Pump Bay Sump are considered continuous when the primary to seco gpd).	vastes is from a r ng the continuou v Drain System a ondary leak rate	non-discrete volume; as release. Releases and Chemical Waste exceeds 0.1 gpm (142
(f)	The principal gamma emitters for which the LLD specifical following radionuclides: Mn-54, Fe-59, Co-58, Co-60, Zr and Ce-144. This list does not mean that only these nuclid Other peaks which are measurable and identifiable, togethe identified and reported. Nuclides which are below the LLI "less than" the nuclide's LLD, and should not be reported a that nuclide. The "less than" values should not be used in unusual circumstances result in LLD's higher than required the Radioactive Effluent Release Report.	tion will apply a n-65, Mo-99, Cs les are to be det er with the abov D for the analyse as being present the required dos l, the reasons sh	are exclusively the s-134, Cs-137, Ce-141, ected and reported. e nuclides, shall also be es should be reported a at the LLD level for se calculations. When all be documented in
	When radioactivity is identified in the secondary system, a	RWDA-L should be dischard	ld be prepared on a
(g)	monthly basis to account for the radioactivity that will even	intually be discha	arged to the Ohio River

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E	eaver Valley Power Station		1/2-ODC-3.03
Title:		Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Contr	Is for RETS and REMP Programs	Revision:	Page Number:
	۸ TT ۸ (TIN JENIT LI	8	59 of 86
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	ODCM CONTROLS: LIQUID EFFLUEN	T DOSE	
CONTROLS:	LIQUID EFFLUENT DOSE		
3.11.1.2	In accordance with T.S.5.5.2.d and T.S. 5.5.2.c, the de MEMBER(S) OF THE PUBLIC from radioactive mat from the reactor unit (see 1/2-ODC-2.01 Figure 5-1) s	ose or dose c erials in liqui hall be limite	commitment to id effluents released id:
	a. During any calendar quarter to less than or equator to less than or equal to 5 mrem to any organ, a	al to 1.5 mre nd	em to the total body and
	b. During any calendar year to less than or equal less than or equal to 10 mrem to any organ.	to 3 mrem to	the total body and to
Applicability:	At all times.		
Action:			
a. With the of the second constraints drinking regard	e calculated dose from the release of radioactive mater bove limits, prepare and submit to the Commission wit B(a)(2)(v) and 10 CFR 50.4(b)(1), a Special Report which ing the limit(s) and defines the corrective actions to be ed corrective actions to be taken to assure the subseque (This Special Report shall also include (1) the results of g water source and (2) the radiological impact on finish to the requirements of 40 CFR 141, Safe Drinking Water	ials in liquid hin 30 days, ich identifies taken to redu ent releases v f radiologica ed drinking er Act).*	effluents exceeding any pursuant to 10 CFR the cause(s) for the releases, and the will be within the above analyses of the water supplies with
b. The pr	visions of ODCM CONTROL 3.0.3 are not applicable		
P.			
SURVEILLA	ICE REQUIREMENTS		
4.11.1.2.1	Dose Calculations. Cumulative dose contributions fro determined in accordance with 1/2-ODC-2.01 at least	m liquid efflu once per 31 o	ients shall be days.
* Applicable c plant dischar	nly if drinking water supply is taken from the receiving ge (three miles downstream only).	water body v	within three miles of the

Г		Dread	umbor:
	Beaver Valley Power Station	Procedure Ni	1/2-ODC-3.03
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	ATTACHMENT I Page 1 of 1 ODCM CONTROLS: LIQUID RADWASTE TREATI	MENT SY	STEM
CONTROLS	S: LIQUID RADWASTE TREATMENT SYSTEM		
3.11.1.3	In accordance with T.S.5.5.2.f, the Liquid Radwaste Tro reduce the radioactive materials in each liquid waste bat projected doses due to liquid effluent releases from the Figure 5-1) when averaged over 31 days would exceed of mrem to any organ.	eatment Sy ch prior to reactor un 0.06 mrem	vstem shall be used to its discharge when the it (see 1/2-ODC-2.01 to the total body or 0.2
<b>Applicability</b>	At all times.		
Action:			
a. With and s 50.4(	liquid waste being discharged without treatment and exceedubmit to the Commission within 30 days pursuant to 10 Cl b)(1) a Special Report which includes the following inform	eding the li FR 20.2202 nation:	mits specified, prepare 3(a)(2)(v) and 10 CFR
1.	Identification of the inoperable equipment or subsystems	s and the re	eason for inoperability
2.	Action(s) taken to restore the inoperable equipment to c	perational	status, and
3.	Summary description of action(s) taken to prevent a recu	urrence.	
b. The p	provisions of ODCM CONTROL 3.0.3 are not applicable.		
SURVEILL	ANCE REQUIREMENTS		
4.11.1.3.1	Doses due to liquid releases shall be projected at least or with 1/2-ODC-2.01.	nce per 31	days, in accordance

	Dower Welley Dower Station	Procedure Nu	mber:	
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		1/2	General Skill Reference	
ODCM: Con	trols for RETS and REMP Programs	Revision: 8	Page Number: 61 of 86	
	ATTACHMENT J Page 1 of 1 ODCM CONTROLS: LIQUID HOLDUP 7	ΓANKS		
CONTROLS	S: LIQUID HOLDUP TANKS			
3.11.1.4	In accordance with T.S.5.5.8, the quantity of radioactive following tanks shall be limited to the values listed below or entrained noble gases.	ve material o ow, excludin	contained in each of the g tritium and dissolved	
	<ul> <li>a. ≤ 18 Curies: 1BR-TK-6A (Unit 1 Primary Water Storage)</li> <li>b. ≤ 18 Curies: 1BR-TK-6B (Unit 1 Primary Water Storage)</li> <li>c. ≤ 7 Curies: 1LW-TK-7A (Unit 1 Steam Generator Draine)</li> <li>d. ≤ 7 Curies: 1LW-TK-7B (Unit 1 Steam Generator Draine)</li> <li>e. ≤ 6 Curies: 1QS-TK-1 (Unit 1 Refueling Water Storage)</li> <li>f. ≤ 62 Curies: 2QSS-TK21 (Unit 2 Refueling Water Storage)</li> <li>g. ≤ 10 Curies: Unit 1 and 2 miscellaneous temporary outset</li> </ul>	ge Tank) ge Tank) n Tank) n Tank) e Tank-RWS ⁷ age Tank-RV side radioactiv	T) VST) ve liquid storage tanks.	
APPLICABI	LITY: At all times.	-		
ACTION:				
a. With the o compliance performed (i.e.; at th to be exce hours redu	<ul> <li>a. With the quantity of radioactive material in the tank exceeding the limit, perform calculations to determin compliance to the limits of 10 CFR Part 20, Appendix B, Table 2, Column 2. These calculations shall 1 performed at the nearest potable water supply, and the nearest surface water supply in the unrestricted a (i.e.; at the entrance to the Midland Water Treatment Facility). IF the limits of 10 CFR Part 20 are determined to be exceeded, <u>THEN</u> immediately suspend all additions of radioactive material to the tank and within hours reduce the tank contents to within the limits set forth in 10 CFR Part 20, and</li> </ul>			
b. Submit a descriptio 20.	Special Report in accordance with 10 CFR 50.4 (b) (1) within n of activities planned and/or taken to reduce the contents to with	30 days and ithin the limit	include a schedule and a s set forth in 10 CFR Part	
c. The provi	sions ODCM Control 3.0.3 are not applicable.			
SURVEILL	ANCE REQUIREMENTS			
4.11.1.4.1	The quantity of radioactive material contained in each of the and 2 RWST's) shall be determined to be within the above li sample of the tank's contents at least once per 7 days when r the tank.	above listed mit by analyz adioactive m	tanks (except the Unit 1 zing a representative aterials are being added to	
4.11.1.4.2	<u>SINCE</u> additions of radioactive material to the Unit 1 and 2 of a refueling outage (i.e.; drain down of the reactor cavity b to this limit shall be performed as follows:	RWST's are back to the RV	normally made at the end WST), <u>THEN</u> compliance	
	The quantity of radioactive material contained in the Unit 1 be within the above limit by analyzing a representative samp after transfer of reactor cavity water to the respective Unit's	and 2 RWST ble of the tank RWST.	's shall be determined to s contents within 7 days	

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]	Beaver Valley Power Station Procedure Number: 1/2-ODC-3.03						
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	ODCM CONTROLS: GASEOUS EFFLUENT DO	OSE RATE	· · · · · · · · · · · · · · · · · · ·				
CONTROLS	: GASEOUS EFFLUENT DOSE RATE		· · · · · · · · · · · · · · · · · · ·				
3.11.2.1	In accordance with T.S.5.5.2.c and T.S. 5.5.2.g, the dose (see 1/2-ODC-2.02 Figure 5-1) due to radioactive mater from the site shall be limited to the following values:	e rate in the ials released	e unrestricted areas 1 in gaseous effluents				
	a The dose rate limit for noble gases shall be $\leq 500$ n 3000 mrem/yr to the skin*, and	nrem/yr to f	he total body and $\leq$				
	<ul> <li>b. The dose rate limit, inhalation pathway only, for I-in particulate form (excluding C-14) with half-lives ≤ 1500 mrem/yr to any organ.</li> </ul>	131, tritium greater tha	and all radionuclides in eight days shall be				
Applicability:	At all times.						
Action:							
a. With th with the	e dose rate(s) exceeding the above limits, immediately decr e above limits(s), and	ease the re	lease rate to comply				
b. Submit and 10	a Special Report to the Commission within 30 days pursua CFR 50.4(b)(1).	nt to 10 CI	FR 20.2203(a)(2)(v)				
c. The pro	ovisions of ODCM CONTROL 3.0.3 are not applicable.						
SURVEILLA	ANCE REQUIREMENTS						
4.11.2.1.1	The dose rate due to noble gaseous effluents shall be deta limits in accordance with 1/2-ODC-2.02.	ermined to	be within the above				
4.11.2.1.2 The dose rate, inhalation pathway only, for I-131, tritium and all radionuclides in particulate form (excluding C-14) with half-lives greater than eight days in gaseous effluents, shall be determined to be within the above limits in accordance with the method and procedures of the ODCM by obtaining representative samples and performing analyses in accordance with the sampling and analysis program specified in ODCM Control 3.11.2.1, Table 4.11-2.							
*During contai	inment purge the dose rate may be averaged over 960 minutes.						

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ne.				1/2	General Skill Reference
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ODC	M CONTROLS:	GASEOUS EH	FLUENT DOS	E RAT	E
		<u>TABLE 4.11</u>	<u>-2</u>		
				1 1 1 1010	
RADIOACTIV	<u>E GASEOUS W</u>	ASTE SAMPL	ING AND ANA	ALYSIS	PROGRAM
	T	MINIMIM	TYPE	T	OWER LIMIT OF
GASEOUS	SAMPI ING		OF		DETECTION
DELEVCE	EDEOLIENCY	FRECIENCY			
TVDE	TREQUENCE	TREQUENC I			$(\mathrm{uCi/ml})^{(a)}$
A Weste Ges Storage	p	D	Principal	<u> </u>	
Tank	Each Tank	Fach Taple	Gamma		11.7~~4
1 dilk.	Crob Somplo		Emittors ^(g)		
	Giab Sample	Dech Tenle*			10.6
	Crah Commis		п-э		16-0
D. Cautaline and Duran	Grab Sample	D	Dringing! Com		117.4
B. Containment Purge	$\mathbf{P}$	$\mathbf{r}$	Principal Gami	ma	1년-4
	Each Purge /	Each Purge	Emitters		17 (
	Grab Sample		H-3		1E-6
C. Ventilation	$M^{(b)(c)(e)}$	M ^(b)	Principal Gam	ma	1E-4
Systems ^(h)	Grab Sample		Emitters ^(g)		
VV-1 (U1 PAB/Ventilation Vent)			H-3		1E-6
CV-1 (U1 Rx Cont/SLCRS Vent) PV-1/2 (U1/2 GW/Process Vent)					
VV-2 (U2 SLCRS Unfiltered Path)					
CV-2 (U2 SLCRS Filtered Path)					
DV-2 (U2 Decon Bldg Vent)					
W V-2 (U2 Waste Gas Vault Vent) CB-2 (U2 Cond Pol Bldg Vent)					

* The H-3 concentration shall be estimated prior to release and followed up with an H-3 grab sample from the Ventilation System during release.

Beaver	Valley Pow	ver Station		1/2-ODC-3.03		
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OL	DCM CONTROLS	S: GASEOUS	EFFLUENT DO	SE RATI	3	
	m					
	<u> </u>	ABLE 4.11-2 (0	continued)			
ΡΑΠΙΟΛΟΊ	TWE GASEOUS	WASTE SAME		AT VEIC	DDOGDAM	
KADIOACI	TVE UASEOUS	WASTE SAM	LING AND AN	AL 1 515	TROOMAIN	
		MINIMUM	ТҮРЕ	LO	WER LIMIT OF	
GASEOUS	SAMPLING	ANALYSIS	OF	I	DETECTION	
RELEASE	FREQUENCY	FREQUENCY	ACTIVITY	(LLD)		
TYPE			ANALYSIS		$(uCi/ml)^{(a)}$	
D All Ventilation	Il Ventilation Continuous ^(f)		I-131		1E-12	
Systems Listed		Charcoal	I-133		1E-10	
Above (in C.)		Sample	1 155		112 10	
Which Produce		Sumple				
Continuous	Continuous ^(f)	W ^(d)	Principal Gamn	na	1E-11	
Release		Particulate	Emitters ^(g)			
renoube		Sample	(I-131, Others)			
	Continuous ^(f)	M	Gross Alpha		1E-11	
		Composite	<b>r</b>			
		Particulate				
		Sample				
	Continuous ^(f)	0	Sr-89 Sr-90		1E-11	
		Composite	5. 57, 51 70			
		Particulate				
		Sample				
· ·	Continuous ^(f)	Noble Gas	Noble Gases		1F-6	
	Continuous	Monitor	Gross Rata And		11-0	
			Giuss Dela Alla			
		I	Gainina			

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	ODCM CONTROLS: GASEOUS EFFLUENT DO	OSE RATE	3
	TABLE 4 11-2 (continued)		
	TABLE NOTATION		
(a)	The Lower Limit of Detection (LLD) is defined in Table Notation (a) of C for ODCM Surveillance Requirement 4.11.1.1.	DCM Contr	rol 3.11.1.1, Table 4.11
(b)	Samples (grab particulate, iodine & noble gas) and analysis shall also be p STARTUP, or a THERMAL POWER change exceeding 15% of RATED period. This requirement does not apply if (1) analysis shows that the Do the primary coolant has not increased more than a factor of 3; and (2) the activity has not increased more than a factor of 3.	performed fo THERMAI se Equivalen noble gas mo	POWER within a 1 ho POWER within a 1 ho to I-131 concentration in ponitor shows that effluer
	<u>Clarification</u> : All samples shall be obtained within 24 hours of reaching and analyzed within 48 hours of reaching the intended steady state power	the intended level.	steady state power leve
	<u>Applicability:</u> Unit 1 Ventilation Systems (VV-1, CV-1 and/or PV-1/2), CV-2 and/or PV-1/2), as appropriate. Specifically, sample the ventilation increase on the noble gas effluent monitor. ^{(3.1.16)(3.1.18)}	or Unit 2 Ve release path	entilation Systems (VV- a(s) that show a factor c
(c)	Tritium grab samples shall be taken at least once per 24 hours (from the a the refueling canal area) when the containment refueling canal is flooded. completion of vessel defueling. Sampling shall resume upon commencement	ppropriate ve Sampling manual ent of vessel	entilation release path o ay be terminated after refueling.
	<u>Applicability - (MODE 6):</u> Unit 1 Ventilation System (VV-1 or CV-1), CV-2), that is aligned to the Reactor Containment Building atmosphere. I release path, samples may be obtained from the Reactor Containment Building	or Unit 2 Ve n lieu of san lding atmosp	ntilation System (VV-2 apling the ventilation here. ^{(3.1.11) (3.1.19)}
(d)	<u>Part 1:</u> Samples (continuous particulate & iodine) shall be changed at lea be completed within 48 hours after changing, or after removal from sample	st once per 7 er.	days and analyses shal
	Applicability for Part 1: Unit 1 and Unit 2 Ventilation Systems (VV-1, WV-2 & CB-2).	CV-1, PV-1/	/2, VV-2, CV-2, DV-2,
	<u>Part 2:</u> Samples (continuous particulate & iodine) shall also be changed a days following each SHUTDOWN, STARTUP, or THERMAL POWER THERMAL POWER within a 1 hour period and analyses shall be comple When samples collected for 24 hours are analyzed, the corresponding LLI This requirement does not apply if: (1) analysis shows that the DOSE EQ the reactor coolant has not increased more than a factor of 3; and (2) the n activity has not increased more than a factor of 3.	at least once change exce eted within 4 Ds may be in UIVALENT oble gas more	per 24 hours for at least eding 15% of RATED 8 hours of changing. creased by a factor of 1 [1-13] concentration in nitor shows that effluen
	<u>Clarification</u> : All samples shall be changed within 24 hours of reaching t and analyzed within 48 hours of reaching the intended steady state power	he intended : level.	steady state power level
	<u>Applicability for Part 2:</u> Unit 1 Ventilation Systems (VV-1, CV-1 and/o Systems (VV-2, CV-2 and/or PV-1/2), as appropriate. Specifically, chang samples for the ventilation release path(s) that show a factor of 3 increase (3.1.16)(3.1.18)	or PV-1/2), o e out the cor on the noble	r Unit 2 Ventilation htinuous particulate, iod gas effluent monitor.

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	ODCM CONTROLS: GASEOUS EFFLUENT D	OSE RATI	E ·
(e)	Tritium grab samples shall be taken at least once per 7 days (from the ap spent fuel pool area) whenever spent fuel is in the spent fuel pool.	propriate ven	tilation release path of the
	<u>Applicability:</u> Unit 1 Ventilation System (CV-1), or Unit 2 Ventilation Fuel Handling Building atmosphere. In lieu of sampling the ventilation r from the Fuel Handling Building atmosphere. ^(3.1.11) (3.1.19)	System (CV-2 elease path, s	2) that is aligned to the amples may be obtained
(f)	The average ratio of the sample flow rate to the sampled stream flow rate covered by each dose or dose rate calculation made in accordance with C and 3.11.2.3.	e shall be kno DCM CONT	wn for the time period TROLS 3.11.2.1, 3.11.2.2,
	<u>Clarification</u> : The average ratio of the sample flow rate to the sampled a it must not be used in dose and dose rate calculation. Specifically, use of conservative dose calculations, and would compromise licensee response 30-05. For information, a comprehensive three-year Radiation Monitor response to the unresolved item's concern that the effluent monitors were per ANSI N13.1. The results of that study concluded that a correction fa applied to particulate sample volume calculations and subsequent dose at the minimum CF of 2 must be utilized in-lieu of actual ratios of sample f rate. In summary, the minimum CF of 2 provides adequate compensation sample collection. ^(3.2.13)	stream flow ra f this ratio wo to NRC Unre Particle Study not collectin actor (minimu nd dose rate c low rate to the for any negative for any	ate can be determined, but ould provide non- esolved Item 50-334/83- was performed in g representative samples m CF of 2) must be calculations. Specifically, e sampled stream flow ative bias in particulate
	Applicability: Unit 1 Ventilation Systems (VV-1, CV-1 & PV-1/2), and CV-2).	l Unit 2 Venti	ilation Systems (VV-2 &
(g)	The principal gamma emitters for which the LLD specification will apply radionuclides: Kr-87, Kr-88, Xe-133, Xe-133m, Xe-135, and Xe-138 fc Co-58, Co-60, Zn-65, Mo-99, Cs-134, Cs-137, Ce-141, and Ce-144 for mean that only these nuclides are to be detected and reported. Other pea identifiable, together with the above nuclides, shall also be identified and the LLD for the analyses should not be reported as being present at the L unusual circumstances result in LLD's higher than required, the reasons of Radioactive Effluent Release Report.	y are exclusiv or gaseous em particulate en ks which are a l reported. Na LD level for shall be docur	ely the following hissions and Mn-54, Fe-59, nissions. This list does not measurable and uclides which are below that nuclide. When nented in the Annual
(h)	Only when this release path is in use.		
	Applicability: Unit 1 and Unit 2 Ventilation Systems (VV-1, CV-1, FCB-2).	PV-1/2, VV-2	, CV-2, DV-2, WV-2 &

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		ODCM CONTROLS: DOSE- NOBLE GA	SES	
CONTR	OLS: I	OSE-NOBLE GASES		
3.11.2.2	: ] נ נ	n accordance with T.S. 5.5.2.e and T.S. 5.5.2.h,, the air inrestricted areas (see 1/2-ODC-2.02 Figure 5-1) due to ffluents shall be limited to the following:	r dose from o noble gas	a the reactor unit in es released in gaseous
	2	During any calendar quarter, to $\leq$ 5 mrad for gammeter beta radiation.	na radiatio	n and $\leq 10$ mrad for
	ł	During any calendar year, to $\leq 10$ mrad for gamma radiation.	radiation	and $\leq 20$ mrad for beta
Applicat	oility:	At all times.		
Action:				
a. Wi abo 20 exc pro lim	ith the c ove limi 2203(a ceeding oposed nits.	alculated air dose from radioactive noble gases in gased ts, prepare and submit to the Commission with in 30 da J(2)(v) and 10 CFR 50.4(b)(1), a Special Report which the limit(s) and defines the corrective actions taken to r corrective actions to be taken to assure the subsequent r	ous effluent ys, pursuar identifies t reduce the releases wit	s exceeding any of the nt to 10 CFR he cause(s) for releases and the Il be within the above
b. Th	ne provis	ions of ODCM CONTROL 3.0.3 are not applicable.		
SURVE	ILLAN	CE REQUIREMENTS		
		-		
4.11.2.2	.1 <u>I</u> v	<u>Dose Calculations</u> . Cumulative dose contributions shall with 1/2-ODC-2.02 at least once every 31 days.	be determi	ned in accordance

Requer Valley Power Station	Procedure Number:		
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11ue. /	1/2	General Skill Reference	
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ODCM CONTROLS: DOSE - RADIOIODINES AND P	ARTICUL	ATES	
CONTROLS: DOSE-RADIOIODINES, RADIOACTIVE MATERIAI AND RADIONUCLIDES OTHER THAN NOBLE GAS	L IN PART SES	TCULATE FORM,	
3.11.2.3 In accordance with T.S. 5.5.2.e and T.S. 5.5.2.i, the dose PUBLIC from radioiodines and radioactive materials in p and radionuclides (other than noble gases) with half-lives gaseous effluents releases from the reactor unit (see 1/2-0 limited to the following:	to MEME articular fo greater tha DDC-2.02	BER(S) OF THE form (excluding C-14), an eight days in Figure 5-1) shall be	
a. During any calendar quarter to $\leq 7.5$ mrem to any	v organ, and	d	
b. During any calendar year to $\leq 15$ mrem to any org	gan.		
Applicability: At all times.			
Action:			
a. With the calculated dose from the release of radioiodines, radioa form, (excluding C-14), and radionuclides (other than noble gase eight days, in gaseous effluents exceeding any of the above limits Commission within 30 days, pursuant to 10 CFR 20.2203(a)(2)( Special Report, which identifies the cause(s) for exceeding the lin actions taken to reduce the releases and the proposed corrective subsequent releases will be within the above limits.	ctive mater (s) with hal (s, prepare a (v) and 10 C (nit and def (actions to b	ials in particulate f-lives greater than nd submit to the CFR 50.4(b)(1), a ines the corrective be taken to assure the	
b. The provisions of ODCM CONTROL 3.0.3 are not applicable.			
SURVEILLANCE REQUIREMENTS			
4.11.2.3.1 <u>Dose Calculations</u> . Cumulative dose contributions shall to 1/2-ODC-2.02 at least once every 31 days.	oe determin	ed in accordance with	

	· · · · · · · · · · · · · · · · · · ·	Beaver Valley Power Station	Procedure Nu	umber: 1/2-ODC-3.03
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		ODCM CONTROLS: GASEOUS RADWASTE TREAT	TMENT S	YSTEM
CON	ITROLS	S: GASEOUS RADWASTE TREATMENT SYSTEM		
3.11.	2.4	In accordance with T.S. 5.5.2.f, Item 6, the Gaseous Ra Ventilation Exhaust Treatment System shall be used to gaseous waste prior to their discharge when the project to gaseous effluent releases from the reactor unit (see 1/ averaged over 31 days, would exceed 0.2 mrad for gam radiation. The appropriate portions of the Ventilation E used to reduce radioactive materials in gaseous waste pr projected doses due to gaseous effluent releases from the Figure 5-1) when averaged over 31 days would exceed	idwaste Tro reduce radi ed gaseous /2-ODC-2. ma radiatic Exhaust Tro rior to their ie reactor u 0.3 mrem t	eatment System and the loactive materials in effluent air doses due 02 Figure 5-1), when on and 0.4 mrad for beta eatment System shall be r discharge when the unit (see 1/2-ODC-2.02 o any organ.
Appli	icability	At all times.		
Actic	<u>on</u> :			
a.	With and s 50.4(	gaseous waste being discharged without treatment and in ubmit to the Commission within 30 days, pursuant to 10 C b)(1), a Special Report which includes the following inform	excess of t CFR 20.220 mation.	he above limits, prepare 3(a)(2)(v) and 10 CFR
	1.	Identification of the inoperable equipment or subsystems	s and the re	eason for inoperability,
	2.	Action(s) taken to restore the inoperable equipment to c	operational	status, and
	3.	Summary description of action(s) taken to prevent a rec	urrence.	
b.	The p	provisions of ODCM CONTROL 3.0.3 are not applicable.		
SUR	VEILLA	ANCE REQUIREMENTS		
4.11.	2.4.1	Doses due to gaseous releases from the site shall be proj accordance with 1/2-ODC-2.02.	jected at le	ast once per 31 days, in

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	ODCM CONTROLS. GAS STORAGE TA	INKS		
CONTROL	LS: GAS STORAGE TANKS			
	· · · · · · · · · · · · · · · · · · ·			
3.11.2.5	In accordance with T.S. 5.5.8, the quantity of radioactivi	ty containe	d in the following gas	
	storage tanks(s) shall be limited to the noble gas values is 133)	isted below	(considered as Xe-	
• .	1 <i>33 j</i> .			
	a. <52,000 Curies: Each BV-1 Waste Gas Decay Tan	k (1GW-TI	K-1A, or 1GW-TK-	
	1B, or 1GW-1K-1C)		- 	
	b. $\leq$ 19,000 Curies: Any connected group of BV-2 Ga	seous Wast	e Storage Tanks	
	(2GWS-TK25A thru 2GWS-TK25G)			
APPLICA	SILITY At all times			
<u> </u>				
ACTION:				
a.	With the quantity of radioactive material in any gas storage	e tank exce	eding the above limit,	
	immediately suspend all additions of radioactive material to	the tank a	nd within 48 hours	
	reduce the tank contents to within the limit, and			
b.	Submit a Special Report in accordance with 10 CFR 50.4	(b)(1) withi	n 30 days and include	
	a schedule and a description of activities planned and/or ta	ken to redu	ice the contents to	
	within the specified limits.		•	
C.	The provisions of ODCM Control 3.0.3 are not applicable.			
SURVEIL	LANCE REQUIREMENTS			
4.11.2.5.1	For BV-1 Waste Gas Decay Tanks: The quantity of radi	oactive ma	terial contained in each	
	BV-1 Waste Gas Decay Tank shall be determined to be w	within the a	bove limit at least	
	this surveillance is required when the gross concentration	aded to the	nary coolant is greater	
	than 100 uCi/ml.	r or the prin	hary coolant is greater	
		<b>C</b> 1'		
	For BV-2 Gaseous Waste Storage Tanks: The quantity of any connected group of BV 2 Gaseous Waste Storage	of radioacti	ve material contained	
	be within the above limit at least once per 24 hours when	radioactiv	e materials are being	
	added to the tanks.			

	Beaver Valley Power Station	Procedure Nu	mber: $1/2$ ODC 2.02
Fitle:		Unit:	1/2-UDC-3.03 Level Of Use:
, no.		1/2	General Skill Reference
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	ATTACHMENT P		
	Page 1 01 1 ODCM CONTROLS: TOTAL DOS	16	
	ODEM CONTROLS. TOTAL DOS	)E	
CONTROLS	: TOTAL DOSE		
3.11.4.1	In accordance with T.S. 5.5.2.j, the annual (calendar y any MEMBER OF THE PUBLIC due to releases of r uranium fuel cycle sources shall be limited to $\leq 25$ mre except the thyroid, which shall be limited to $\leq 75$ mre	ear) dose or adioactivity a ems to the wl ns.	dose commitment to and to radiation from hole body or any organ,
Applicability	At all times.		
Action			
<u>Action</u> .			
3.11.2. units (i CONT Commi Special prevent confort include from un calenda radiatio or cono resultin include the rep comple	3a, or 3.11.2.3b, calculations shall be made including dir ncluding outside storage tanks, etc.) to determine whethe ROL 3.11.4.1 have been exceeded. If such is the case, p ssion within 30 days, pursuant to 10 CFR 20.2203(a)(2) Report that defines the corrective action to be taken to recurrence of exceeding the above limits and includes the nance with the above limits. This Special Report, as def an analysis that estimates the radiation exposure (dose) anium fuel cycle sources, including all effluent pathways in year that includes the release(s) covered by this report. on and concentrations of radioactive material involved, an centrations. If the estimated dose(s) exceeds the above li- ing in violation of 40 CFR Part 190 has not already been of a request for a variance in accordance with the provision ort is considered a timely request, and a variance is grant te.	ect radiation er the above repare and su (v) and 10 C reduce subse ne schedule fi ined in 10 CI to a MEMBI and direct ra It shall also nd the cause imits, and if t corrected, the ns of 40 CFR ted until staff	contributions from the limits of ODCM ubmit to the FR 50.4(b)(1), a quent releases to or achieving FR 20.405(c), shall ER OF THE PUBLIC adiation, for the o describe levels of of the exposure levels he release condition e Special Report shall Part 190. Submittal o faction on the request i
	ANCE REGUIREMENTS		
4.11.4.1.1	Cumulative dose contributions from liquid and gaseou accordance with ODCM SURVEILLANCE REQUIR and 4.11.2.3.1.	s effluents sh EMENTS 4.	all be determined in 11.1.2.1, 4.11.2.2.1,

4.11.4.1.2 Cumulative dose contributions from direct radiation from the units (including outside storage tanks, etc.) shall be determined in accordance with 1/2-ODC-2.04. This requirement is applicable only under conditions set forth in Action a. of ODCM CONTROL 3.11.4.1.

	Beaver Valley Power Station	Procedure Nu	$\frac{1}{2} ODC = 02$
Title:		Unit:	Level Of Use:
ODC	M [·] Controls for RETS and REMP Programs	1/2 Revision:	General Skill Referer Page Number:
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	Page 1 of 9		
	ODCM CONTROLS: REMP-PROGRAM REQ	UIREMENT	TS
COl	JTROLS: RADIOLOGICAL ENVIRONMENTAL MONITOR	ING PROGR	AM
A pr prog path envi guid	ogram shall be provided to monitor the radiation and radionuclic ram shall provide (1) representative measurements of radioactiv ways, and (2) verification of the accuracy of the effluent monitor ronmental exposure pathways. The program shall (1) be contain ance of the Appendix I to 10 CFR Part 50, and (3) include the fo	les in the env ity in the high ring program led in the OD ollowing:	irons of the plant. T test potential exposu and modeling of CM (2) conform to t
1. 2. 3.	Monitoring, sampling, analysis, and reporting of radiation and ra accordance with the methodology and parameters in the ODCM A Land Use Census to ensure that changes in the use of areas at identified and that modifications to the monitoring program are census, and Participation in an Interlaboratory Comparison Program to ensu	adionuclides i [, and beyond made if requi re that indepo	n the environment in the site boundary are red by the results of endent checks on the
3.12 Con	matrices are performed as part of the quality assurance program .1 The radiological environmental monitoring program shall be trol 3.12.1, Table 3.12-1.	for environm	specified in ODCM
App	licability: At all times.		
<u>Acti</u>	<u>on</u> :		
a.	With the radiological environmental monitoring program not ODCM Control 3.12.1, Table 3.12-1, prepare and submit to Radiological Environmental Report, a description of the rease as required and the plans for preventing a recurrence. Devia sampling schedule if specimens are unobtainable due to hazar unavailability, malfunction of automatic sampling equipment a specimens are unobtainable due to sampling equipment malfu complete corrective action prior to the end of the next sampli	being conduct the Commissions for not control tions are perr dous condition and other leginction, every ng period.	eted as specified in on, in the Annual onducting the program nitted from the requi- ons, seasonal timate reasons. If effort shall be made
b.	With the level of radioactivity in an environmental sampling m locations specified in ODCM Control 3.12.1, Table 3.12.1 ex 3.12.1, Table 3.12-2 when averaged over any calendar quarter Commission within 30 days from the end of affected calendar to 10 CFR 20.2203(a)(2)(v) and 10 CFR 50.4(b)(1) which in conditions, environmental factors or other aspects which cause	nedium at one ceeding the li r, prepare an quarter a Sp cludes an eva sed the limits	e or more of the mits of ODCM Cons d submit to the ecial Report pursuan luation of any release of ODCM Control

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3.12.1, Table 3.12-2 to be exceeded. This report is not required if the measured level of radioactive was not the result of plant effluents; however, in such an event, the condition shall be reported and described in the Annual Radiological Environmental Report.

[	Beaver Valley Power Station	Procedure Nu	imber:
Title			1/2-ODC-3.03
The.		1/2	General Skill Reference
ODCN	M: Controls for RETS and REMP Programs	Revision:	Page Number:
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	ODCM CONTROLS: REMP-PROGRAM REC	DUIREMENT	TS
	When more than one of the radionuclides in ODCM Control the sampling medium, this report shall be submitted if:	3.12.1, Table	3.12-2 are detected in
	Concentration (1)Concentration (2)Limit Level (1)+Limit Level (2)+	1.0	
C.	With milk or fresh leafy vegetable samples unavailable from the selected in accordance with ODCM CONTROL 3.12.2 and 1 replacement samples. The locations from which samples were from those required by ODCM Control 3.12.1, Table 3.12-1 locations from which the replacement samples were obtained monitoring program as replacement locations, if available.	the required n listed in the O re unavailable and the ODC I are added to	umber of locations DCM, obtain may then be deleted M provided the the environmental
d.	The provisions of ODCM CONTROL 3.0.3 are not applicab	le.	
<u>SUR</u>	VEILLANCE REQUIREMENTS		
	pursuant to be requirements of ODCM Control 3.12.	1, Tables 3.12	2-1 and 4.12-1.
			• .
	·		
			· · ·
			· · ·

Beaver	Valley Power S	Station	Procedure Nu	mber: 1/2_ODC_3_03
Title: ODCM: Controls for R	ETS and REMP Progra	ms	Unit: 1/2 Revision:	Level Of Use: General Skill Referen Page Number:
· · · · · · · · · · · · · · · · · · ·			8	74 of 86
OD	P CM CONTROLS: REI <u>T</u>	ACHMENT Q 'age 3 of 9 MP-PROGRAM REQU ABLE 3.12-1	JIREMENT	'S
<u>RADI</u>	OLOGICAL ENVIRO	MENTAL MONITOF	UNG PROC	<u> </u>
EXPOSURE PATHWAY AND/OR SAMPLE	NUMBER OF SAMPLES AND LOCATIONS	SAMPLING AND COLLECTION FREQUENCY	TYPE ANI OF ANALY	) FREQUENCY ^(a) YSIS
1. AIRBORNE a. Radioiodine And Particulates	<ol> <li>5 locations</li> <li>1. One sample from a control location 10-20 miles distant and in the least prevalent wind direction</li> <li>2. One sample from vicinity of community having the highest calculated annual average ground level D/Q.</li> </ol>	Continuous operation of sampler with sample collection at least weekly.	Each radioid Analyze for Particulate Analyze for beta weekly Perform gau analysis on location) sa quarterly.	odine canister. I-131; sampler. gross (b). mma isotopic composite (by mple at least
2. DIRECT RADIATION	40 locations ≥ 2 TLDs or a pres- surized ion chamber at each location.	Continuous measurement with collection at least quarterly.	Gamma dos	e, quarterly.

(a) Analysis frequency same as sampling frequency unless otherwise specified.

^(b)Particulate samples are not counted for ≥ 24 hours after filter change. Perform gamma isotopic analysis on each sample when gross beta is >10 times the yearly mean of control samples.

**Sample locations are given on figures and tables in 1/2-ODC-2.03.

Deaver	valley rowe			1/2-ODC-3.03
lle: DCM: Controla for Pl			Unit: <u>1/2</u> Revision:	Level Of Use: General Skill Refer Page Number:
DCM. Controls for Ki	ETS and REMP PTO	grams	8	75 of 86
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UD	CM CONTROLS: 1	KEMP-PROGRAM REQU	JIKEMENI	8
	TAB	LE 3.12-1 (continued)		
RADI	OLOGICAL ENVI	RONMENTAL MONITO	RING PROC	GRAM
EXPOSURE PATHWAY AND/OR SAMPLE	NUMBER OF SAMPLES AND LOCATIONS**	SAMPLING AND COLLECTION FREQUENCY	TYPE ANI OF ANAL	D FREQUENCY ^(a) YSIS
3. WATERBORNE a. Surface	<ol> <li>2 locations.</li> <li>1. One sample upstream.</li> <li>2. One sample downstream.</li> </ol>	Composite* sample collected over a period not to exceed 1 month.	Gamma iso composite s monthly; Tritium ana composite s quarterly.	topic analysis of ample by location lysis of ample at least
b. Drinking	2 locations.	Composite* sample collected over a period not to exceed 2 weeks.	I-131 analysis of each composite sample; Gamma isotopic analysis of composite sample (by location) monthly; Tritium analysis of composite sample quarterly.	
c. Groundwater	N/A - No wells in h plant and riv	ower elevations between er		
d. Sediment From Shoreline	1 location.	Semi-annually.	Gamma iso semi-annua	topic analysis lly.

(a) Analysis frequency same as sampling frequency unless otherwise specified.

*Composite samples shall be collected by collecting an aliquot at intervals not exceeding two hours. For the upstream surface water location, a weekly grab sample, composited each month based on river flow at time of sampling, is also acceptable.

**Sample locations are given on figures and tables in 1/2-ODC-2.03.

Beaver	Valley Power S	Station	Procedure Nu	1/2  ODC  3  O3	
Title:			Unit:	Level Of Use:	
			1/2	General Skill Referen	
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OD	CM CONTROLS: RE	MP-PROGRAM REQU	JIREMENT	S	
	TABLE	E 3.12-1 (continued)			
		<u></u>			
RADI	OLOGICAL ENVIRO	NMENTAL MONITOF	UNG PROG	GRAM	
FXPOSURE	NUMBER OF	SAMPLING AND	TYPE ANI	D FREQUENCY ^(a)	
PATHWAY AND/OR	SAMPLES AND	COLLECTION	OFANAL	YSIS	
SAMPLE	LOCATIONS**	FREQUENCY	Of MURLIDIS		
4 INGESTION	LOCATIONS				
a Milk	A locations ^(b)	Atleast hisveekly when	Gamma isotopic and I-131 analysis of each sample		
a. Wilk	+ locations.	animals are on pasture.			
	1 Three samples	at least monthly at	anarysis of	eden sample.	
	selected on basis of	other times	{		
	highest potential	other thirds.			
	thyroid dose using				
	milch census data				
	milen consus data.				
	2 One local large		{		
	dairy				
b. Fish	2 locations.	Semi-annual. One	Gamma iso	topic analysis on	
		sample of available	edible porti	ons.	
		species.	-		
c. Food Products	4 locations.	Annually at time of	Gamma iso	topic analysis and	
(Leafy		harvest.	I-131 analy	sis on edible	
Vegetables)	1. Three locations		portion.		
	within 5 miles.				
	2 One control				
· ·	2. Une control				
	location.				

^(a)Analysis frequency same as sampling frequency unless otherwise specified.

^(b)Other dairies may be included as control station or for historical continuity. These would not be modified on basis of milch animal census.

**Sample locations are given on figures and tables in 1/2-ODC-2.03.

<u> </u>					<b></b>		
	Beav	er Valle	ey Power Statio	n	Procedure N	umber: 1/2-ODC-3.03	
Title:			· · · · · · · · · · · · · · · ·		Unit:	Level Of Use:	~~~
anar	$\alpha + 1 \alpha$	EDWO		I	L/Z Revision	Page Number	<u>ce</u>
ODCM:	Controls for	RETS and	I REMP Programs		8	77 of 86	
	<u></u>		ATTACHM	ENT Q	<u> </u>		
			Page 6 o	f 9			
	(	ODCM CO	NTROLS: REMP-PRO	<b>JGRAM REQUI</b>	REMEN	ГS	
			TABLE 3	3.12-2			
	REP	<u>'ORTING ]</u>	LEVELS FOR RADIO	ACTIVITY CON	JCENTR.	ATIONS	
			<u>IN ENVIRONMEN</u>	TAL SAMPLES			
	REPORTING LEVEI						
		ļ	AIRBORNE			BROAD LEAF	
		WATER	PARTICULATE OR	FISH	MILK	VEGETABLES	
	ANALYSIS	(pCi/l)	GASES (pCi/m ³ )	(pCi/kg, WET)	(pCi/l	(pCi/kg, WET)	
	H-3	2E+4 ^(a)					
	Mn-54	1E+3		3E+4			
	Fe-59	4E+2		1E+4			
	Co-58	1E+3		3E+4			
	Co-60	3E+2		1E+4			
	Zn-65	3E+2		2E+4			
	Zr/Nb-95	4E+2					
	I-131	2 ^(b)	0.9		3	1E+2	
	Cs-134	30	10	1E+3	60	1E+3	
	Cs-137	50	20	2E+3	70	2E+3	
	Ba/La-140	2 <b>E</b> +2		,	3E+2		
1	L		l	۱	L	<u>ا</u> ا	

(a) For drinking water samples. This is a 40 CFR Part 141 value. If no drinking water pathway exists, a value of 3E+4 pCi/l may be used.

^(b) If no drinking water pathway exists, a value of 20 pCi/l may be used.

	Bea	aver V	Procedure Number: 1/2-ODC-3.03				
Title:						Unit: 1/2	Level Of Use: General Skill Refere
ODC	M: Controls	for RETS	s and REMP Pr	ograms		8 8	78 of 86
			1	ATTACHMENT	ΓQ		
		ODCM	CONTROLS	Page 7 of 9	AM BEI	NIREMENTS	
		ODCIN	CONTROLS.			2011@Initiation	•
				<u>TABLE 4.12</u>	<u>-1</u>		
	MAXI	MUM VA	ALUES FOR T	HE LOWER LI	MITS OF	DETECTION	(LLD) ^{(a)(e)}
			AIRBORNE				
		WATER	PARTICULATE	_		FOOD	
	ANALYSIS	(pCi/l)	$(pCi/m^3)$	FISH	MILK (pCi/l)	PRODUCTS	SEDIMENT
	Gross Beta		1F-2		(peb)		(peakg, DR1)
	GIUSS Deta		112-2				
	H-3	2000(a)					
	Mn-54	15		130			
	Fe-59	30		260			·
	Co-58,60	15		130			
	Zn-65	30		260			
	Zr-95	30 ^(c)			•		
	Nb-95	15 ^(c)					, ,
	I-131	1 ^(b)	7E-2		1	60	
	Cs-134	15	5E-2	130	15	60	150
	Cs-137	18	6E-2	150	18	80	180
	Ba-140	60 ^(c)			60		
	La-140	15 ^(c)			15		

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Beaver Valley Power Station	Procedure Num	nber: /2_ODC_3_03
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ODCM CONTROLS: REMP-PROGRAM REQUI	REMENTS	5
TABLE 4.12-1 (continued)		
TABLE NOTATION		
<ul> <li>(a) The LLD is the smallest concentration of radioactive material in a sa 95% probability with 5% probability of falsely concluding that a blan signal.</li> </ul>	mple that v ik observat	vill be detected with ion represents a "real"
For a particular measurement system (which may include radiochemi	ical separat	ion):
LLD = <u>4.66 Sb</u>		
(E)(V)(2.22)(Y) exp ( $-\lambda\Delta T$ )		
where:		
LLD is the lower limit of detection as defined above (as pCi per	unit mass c	or volume);
$S_b$ is the standard deviation of the background counting rate or o sample as appropriate (as counts per minute);	f the count	ing rate of a blank
E is the counting efficiency (as counts per transformation);		
V is the sample size (in units of mass or volume);		
2.22 is the number of transformations per minute per picocurie;		
Y is the fractional radiochemical yield (when applicable);		
$\lambda$ is the radioactive decay constant for the particular radionuclide	· · · · · · · · · · · · · · · · · · ·	
$\Delta T$ is the elapsed time between sample collection (or end of the stime of counting (for environmental samples, not plant effluent samples)	sample coll amples).	ection period) and
The value of $S_b$ used in the calculation of the LLD for a detection actual observed variance of the background counting rate or of the samples (as appropriate) rather than on an unverified theoretical calculating the LLD for a radionuclide determined by gamma-ray shall include the typical contributions of other radionuclides norm potassium-40 in milk samples). Typical values of E, V, Y and $\Delta T$ calculations.	n system sh he counting ly predicted spectrome nally presen I should be	hall be based on the g rate of the blank d variance. In etry, the background nt in the samples (e.g., e used in the
		1

	Beaver Valley Power Station	Procedure Nu	umber: 1/2-ODC-3.03
Title:		Unit:	Level Of Use: General Skill Reference
ÖDC	CM: Controls for RETS and REMP Programs	Revision:	Page Number: 80 of 86
	ATTACHMENT Q		
	Page 9 of 9 ODCM CONTROLS: REMP-PROGRAM REQU	IREMENT	ſS
	TABLE 4.12-1 (continued)		
	TABLE NOTATION		
	The LLD is defined as an <u>a priori</u> (before the fact) limit represent measurement system and not as <u>a posteriori</u> (after the fact) limit Analyses shall be performed in such a manner that the stated LL conditions. Occasionally, background fluctuations, unavoidable of interfering nuclides, or other uncontrollable circumstances m unachievable. In such cases, the contributing factors shall be id Annual Radiological Environmental Report.	nting the ca t for a parti D's will be small sam ay render t entified and	apability of a icular measurement. achieved under routine ple sizes, the presence hese LLD's d described in the
(b)	If no drinking water pathway exists, a value of 15 pCi/l may be us	sed.	
(c)	If parent and daughter are totaled, the most restrictive LLD should	d be applie	ed.
(d)	If no drinking water pathway exists, a value of 3000 pCi/l may be	used.	
(e)	This list does not mean that only these nuclides are to be detected are measurable and identifiable, together with the above nuclides, Radiological Environmental Report.	and repor shall be id	ted. Other peaks which entified in the Annual

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	Beaver Valley Power Station	Procedure Nu	umber:
Title:		Unit:	1/2-ODC-3.03 Level Of Use:
		1/2	General Skill Reference
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	ATTACHMENT R	<u> </u>	<u> </u>
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	ODCM CONTROLS: REMP - LAND USE C	CENSUS	
CONTROLS	: RADIOLOGICAL ENVIRONMENTAL MONITORIN	IG - LAND	USE CENSUS
3.12.2	A land use census shall be conducted and shall identify t animal, the nearest residence, and the nearest garden of producing broad leaf vegetation in each of the 16 meter of five miles. For elevated releases as defined in Regula 1977, the land use census shall also identify the location gardens of greater than 500 square feet producing fresh meteorological sectors within a distance of three miles.	the location greater that prological s atory Guide is of all mil- leafy vege	n of the nearest milk an 500 square feet ectors within a distance e 1.111, (Rev. 1), July, k animals and all tables in each of the 16
Applicability	At all times.		
Action:			
a. With a greater 4.11.2. 20.220	land use census identifying a location(s) which yields a cal than the values currently being calculated in ODCM SUR 3.1, prepare and submit to the Commission within 30 days 3(a)(2)(v) and 10 CFR 50.4(b)(1), a Special Report, which	culated do VEILLAN , pursuant h identifies	se or dose commitment ICE REQUIREMENT to 10 CFR the new location(s).
b. With a commit are curr the Con Special radiolo, program calculat program	land use census identifying a milk animal location(s) which ment (via the same exposure pathway) 20% greater than a rently being obtained in accordance with ODCM CONTR mmission within 30 days, pursuant to 10 CFR 20.2203(a)( Report, which identifies the new location. The new locat gical environmental monitoring program within 30 days, if n shall include samples from the three active milk animal le ted dose or dose commitment. Any replaced location may n after October 31 of the year in which this land use censu	n yields a c at a locatio OL 3.12.1 2)(v) and 1 ion shall be possible. ocations, h be deleted is was cond	alculated dose or dose n from which samples prepare and submit to .0 CFR 50.4(b)(1), a e added to the The milk sampling aving the highest from this monitoring ducted.
c. The pro	ovisions of ODCM CONTROL 3.0.3 are not applicable.		
SURVEILLA	ANCE REQUIREMENTS		
4.12.2.1	The land use census shall be conducted at least once per June 1 and October 1 using that information which will a door-to-door survey*, aerial survey, or by consulting	- 12 month provide the local agricu	s between the dates of e best results, such as by ulture authorities.
* Confirmation	on by telephone is equivalent to door-to-door.		

	Beaver Valley Power Station	Procedure Nu	$\frac{1}{2} - 0 D C_{-3} 0 3$
Title:	······································	Unit:	Level Of Use:
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OD	CM CONTROLS: REMP - INTERLABORATORY	COMPARISON	<b>VPROGRAM</b>
CONTROL	S: RADIOLOGICAL ENVIRONMENTAL MONITO COMPARISON PROGRAM	DRING - INTEI	RLABORATORY
2 10 2	Analysis shall be notformed on radio active metaric	la augustical as a	ant of an Interlahant
3.12.3	Comparison Program.	is supplied as p	
Applicability	<u>y</u> :		
At all times.	· · · · ·		
Action:			· ,
a With a	welling wet hains werfermed as used in the second states		
a recu	rrence to the Commission in the Annual Radiological H	the corrective Environmental F	actions taken to preve Report.
<ul><li>a recu</li><li>b. The pi</li></ul>	rrence to the Commission in the Annual Radiological F rovisions of ODCM CONTROL 3.0.3 are not applicab	the corrective Environmental F le.	actions taken to prev leport.
a recu b. The pr SURVEILL	rence to the Commission in the Annual Radiological F rovisions of ODCM CONTROL 3.0.3 are not applicab ANCE REQUIREMENTS	the corrective Environmental F le.	actions taken to prev leport.
<ul> <li>a. White a recu</li> <li>b. The pr</li> <li>SURVEILL</li> <li>4.12.3.1</li> </ul>	The results of analyses performed as performed as performed as required above, report rrence to the Commission in the Annual Radiological F CONTROL 3.0.3 are not applicab ANCE REQUIREMENTS The results of analyses performed as part of the above, report The results of analyses performed as part of the above, report Comparison Program shall be included in the Annual	the corrective Environmental F le ove required Int al Radiological	erlaboratory Environmental Report
<ul> <li>a. The pi</li> <li>b. The pi</li> <li>SURVEILL</li> <li>4.12.3.1</li> </ul>	The results of analyses performed as performed as performed as required above, report rrence to the Commission in the Annual Radiological F rovisions of ODCM CONTROL 3.0.3 are not applicab ANCE REQUIREMENTS The results of analyses performed as part of the above, report The results of analyses performed as part of the above, report Comparison Program shall be included in the Annual	the corrective Environmental F le. ove required Int al Radiological	erlaboratory Environmental Report
a. vitin c a recu b. The pr SURVEILL 4.12.3.1	The results of analyses performed as part of the above, report Comparison Program shall be included in the Annual	the corrective Environmental F le ove required Int al Radiological	erlaboratory Environmental Report
<ul> <li>a. The pi</li> <li>b. The pi</li> <li>SURVEILL</li> <li>4.12.3.1</li> </ul>	The results of analyses performed as performed as performed as required above, report rovisions of ODCM CONTROL 3.0.3 are not applicab ANCE REQUIREMENTS The results of analyses performed as part of the above Comparison Program shall be included in the Annual	the corrective Environmental F le ove required Int al Radiological	erlaboratory Environmental Report
<ul> <li>a. recu</li> <li>b. The pr</li> <li>SURVEILL</li> <li>4.12.3.1</li> </ul>	The results of analyses performed as performed as performed as required above, report rovisions of ODCM CONTROL 3.0.3 are not applicab ANCE REQUIREMENTS The results of analyses performed as part of the above application of the above application of the program shall be included in the Annual Comparison Program s	the corrective Environmental F le ove required Int al Radiological	erlaboratory Environmental Repo
<ul> <li>a. The pi</li> <li>b. The pi</li> <li>SURVEILL</li> <li>4.12.3.1</li> </ul>	The results of analyses performed as performed as performed as required above, report rovisions of ODCM CONTROL 3.0.3 are not applicab ANCE REQUIREMENTS The results of analyses performed as part of the abo Comparison Program shall be included in the Annua	the corrective Environmental F le.	erlaboratory Environmental Repo
a. vviinte a recu b. The pr SURVEILL 4.12.3.1	The results of analyses performed as performed as performed as required above, report rence to the Commission in the Annual Radiological F rovisions of ODCM CONTROL 3.0.3 are not applicab ANCE REQUIREMENTS The results of analyses performed as part of the above Comparison Program shall be included in the Annual	the corrective Environmental F le ove required Int al Radiological	erlaboratory Environmental Report
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	Reaver Valley Power Station	Procedure Nu	mber:					
Title	Beaver valley rower Station	I Init:	1/2-ODC-3.03					
I RIC.		1/2	General Skill Reference					
ODCM: C	Controls for RETS and REMP Programs	Revision: 8	Page Number: 83 of 86					
	ATTACHMENT T							
	Page 1 of 2							
	ODCM CONTROLS: ANNUAL REMP RE	PORT						
CONTRO	DLS: ANNUAL REMP REPORT							
ANNUAI	. RADIOLOGICAL ENVIRONMENTAL OPERATING RE	PORT ⁽³⁾						
6.9.2	In accordance with T.S. 5.6.1, the Radiological Environmental Operating Report cover the operation of the unit during the previous calendar year shall be submitted before N 15 of each year. The report shall include summaries, interpretations, and analyses of trends of the results of the Radiological Environmental Monitoring Program for the reporting period. The material provided shall be consistent with the objectives outline the Offsite Dose Calculation Manual (ODCM) and in 10 CFR Part 50 Appendix I Sec IV.B.2, IV.B.3, and IV.C.							
	The annual radiological environmental reports shall include:							
	• Summaries, interpretations, and statistical evaluation environmental surveillance activities for the report p pre-operational studies, operational controls (as app environmental surveillance reports, and an assessment plant operation on the environment.	ults of the radiological ading a comparison with and previous oserved impacts of the						
	• The results of the land use censuses required by OD	ROL 3.12.2.						
	• If harmful effects or evidence of irreversible damage the report shall provide an analysis of the problem an alleviate the problem.	are detecte nd a planne	ed by the monitoring, d course of action to					
	• Summarized and tabulated results in the format of O of all radiological environmental samples taken durin that some results are not available for inclusion with submitted noting and explaining the reasons for the result be submitted as soon as possible in a supplementary of the submitted sector.	DCM Coning the report, the report, nissing result ntary report	trol 6.9.2, Table 6.9-1 rt period. In the event the report shall be ults. The missing data t.					
	• A summary description of the radiological environm	ental monit	oring program.					
	• A map of all sampling locations keyed to a table give one reactor.	ng distance	es and directions from					
	• The results of licensee participation in the Interlabor required by ODCM CONTROL 3.12.3.	atory Com	parison Program					
⁽³⁾ A sin	ngle submittal may be made for a multiple unit site. The submittal scommon to all units at the station.	should comb	oine those sections that					

(Page 84 of 86)

	ENVIRC Name Of F Location O	DNMENTAL R acility f Facility(	TABL ADIOLOGICAL County, State)	<u>E E:6.9-1</u> <u>MONITORING PR(</u> Dock Repo	OGRAM SUN et No rting Period	<u>IMARY</u>		ODCM C	ols for RETS and RE	
MEDIUM OF PATHWAY SAMPLED (UNIT OF MEASUREMENT)	TYPE AND TOTAL NUMBER OF ANALYSES PERFORMED	LOWER LIMITS OF DETECTION ⁴ (LLD)	ALL INDICATOR LOCATIONS MEAN(F) ^b RANGE ^b	LOCATIONS WITH ANNUAL M NAME DISTANCE AND DIRECTION	I HIGHEST EAN MEAN(F) ^b RANGE ^b	CONTROL LOCATIONS MEAN(F) ^b RANGE ^b	NONROUTINE REPORTED MEASUREMENTS	ATTA Pa ONTROLS:	MP Program	
								ACHMENT 1ge 2 of 2 ANNUAL	1S	
								T , REMP RE		
								PORT	Unu. 1/2 Revision: 8	I Init:
<ul> <li>^a Nominal Lower limit</li> <li>^b Mean and range base</li> </ul>	s of Detection (LLD) a d upon detectable mea	as defined in Table surement only. Fr	Notation ^a of Table action of detectable	4.12-1 of ODCM CONTR measurement at specified	ROL 3.11.1.1. locations is indi	cated in parenthesis (f).			Page Num	I L STOLIO

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	Beaver Valley Power Station	Procedure Nu	umber: 1/2-ODC-3 03				
Fitle:	-	Unit:	Level Of Use:				
ODCM: C	Controls for RETS and REMP Programs	Revision:	Page Number:				
		8	85 of 86				
	Page 1 of 2 ODCM CONTROLS: ANNUAL RETS	REPORTS					
CONTRO	DLS: RETS REPORT						
RADIOA	CTIVE EFFLUENT RELEASE REPORT (4)						
6.9.3	In accordance with T.S. 5.6.2, the Radioactive Effl covering the operation of the unit during the previo 1 of each year in accordance with 10 CFR 50.36a. the quantities of radioactive liquid and gaseous effl unit. The material provided shall be consistent with and Process Control Program (PCP) and in conform CFR Part 50, Appendix I Section IV.B.1.	uent Release R ous year shall be The report sha uents and solid h the objectives mance with 10 0	eport (RERR) e submitted prior to Ma Il include a summary of waste released from th outlined in the ODCM CFR 50.36a and 10				
	This report is prepared and submitted in accordance with 1/2-ENV-01.05, and at a minimum, shall contain the following:						
	<ul> <li>A summary of the quantities of radioactive liquireleased from the unit as outlined in Regulatory "Measuring, Evaluating, And Reporting Radioa Of Radioactive Materials In Liquid And Gaseou Nuclear Power Plants," with data summarized of format of Appendix B thereof.</li> </ul>	id and gaseous Guide 1.21, Ru activity In Solid us Effluents Fro on a quarterly b	effluent and solid waste evision 1, June, 1974, Wastes And Releases om Light-Water-Coolec asis following the				
	<ul> <li>An assessment of radiation doses from the radio released from the unit during each calendar qua 1.21. In addition, the unrestricted area boundar beta air doses shall be evaluated. The assessme performed in accordance with this manual.</li> </ul>	bactive liquid ar rter as outlined ry maximum no ent of radiation of	nd gaseous effluents in Regulatory Guide ble gas gamma air and doses shall be				
	• Any licensee initiated changes to the ODCM ma	ade during the 1	2 month period.				
	• Any radioactive liquid or gaseous effluent moni returned to OPERABLE status within 30 days, corrected in a timely manner. This applies to the instrumentation channels required to be OPERA and 3.3.3.10.	toring instrume and why the ind the liquid or gase ABLE per ODC	ntation channels not operability was not cous effluent monitorin M CONTROLS 3.3.3.				
	• Any ODCM SURVEILLANCE REQUIREME monitoring, sampling and analysis and dose pro	NT deficiencies jection.	. This applies to				
	• The reasons when unusual circumstances result ODCM CONTROL 3.11.1.1, Table 4.11-1 and 4.11-2.	in LLD's highe ODCM CONT	r than required by ROL 3.11.2.1, Table				
(4) A sin secti	ngle submittal may be made for a multiple unit site. The ions that are common to all units at the station; however, ems, the submittal shall specify the releases of radioactive	submittal shoul for units with s material from	d combine those separate radwaste each unit.				

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ŀ	Beaver Valley Power Station	Procedure Nu	$\frac{1}{2} ODC = 0.2$
Title:		Unit:	Level Of Use:
		1/2	General Skill Reference
ODCM: Cont	rols for RETS and REMP Programs	Revision:	Page Number:
	ATTACHMENT U	<b>L</b> °	1 80 01 80
	Page 2 of 2		
	ODCM CONTROLS: ANNUAL RETS	S REPORTS	
CONTROLS	ANNUAL RETS REPORT (continued)	` <b>`</b>	
	• The following information for each type of solir report period:	d waste shipped	offsite during the
	- container volume		
	- total curie quantity (determined by measurem	ent or estimate)	
	- principal radionuclides (determined by measure	rement or estim	ate)
	- type of waste (e.g., spent resin, compacted dr	ry waste, evapor	ator
	bottoms)	Lance Oraștit	)
	- type of container (e.g., LSA, Type A, Type B solidification agent (e.g., coment)	, Large Quantit	<b>y)</b>
	- classification and other requirements specified	l by 10 CFR Par	rt 61
		·	
	<ul> <li>An annual summary of hourly meteorological d This annual summary may be either in the form speed, wind direction, atmospheric stability, and magnetic tape, or in the form of joint frequency direction, and atmospheric stability.</li> </ul>	lata collected ov of an hour-by-l d precipitation ( y distributions of	fer the previous year. nour listing of wind (if measured) on f wind speed, wind
	• An assessment of the radiation doses due to the effluents released from the unit or station durin	e radioactive liq g the previous c	uid and gaseous calendar year.
۰.	• An assessment of the radiation doses from radio THE PUBLIC due to their activities inside the 5.1 and 1/2-ODC-2.02 Figure 5-1 during the re making these assessments (e.g., specific activity included in these reports. The assessment of ra accordance with 1/2-ODC-2.04.	oactive effluents site boundary se port period. Al y, exposure time adiation doses sh	s to MEMBER(S) OF ee 1/2-ODC-2.01 Figu ll assumptions used in e, and location) shall be nall be performed in
	• An assessment of radiation doses to the likely n reactor releases for the previous calendar year t Environmental Radiation Protection Standards Acceptable methods for calculating the dose co effluents are given in Regulatory Guide 1.109, 1 (available from Radiation Shielding Information calculating the dose contribution from direct ra	nost exposed re- to show conforr For Nuclear Po ontribution from Revision 1. The n Center, (ORN) diation due to N	al individual from nance with 40 CFR 19 wer Operation. liquid and gaseous e SKYSHINE Code L)) is acceptable for I-16.

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